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ANNEX

THE

NINTH EXHIBITION

OF THE

MASSACHUSETTS

Charitable Mechanic Association,

AT

FANEUIL AND QUINCY HALLS,

IN THE CITY OF BOSTON,

SEPTEMBER, 1860.

BE JUST AND FEAR NOT.

BOSTON:
PRESS OF GEO. C. RAND & AVERY,
CITY PRINTERS.
1860.

✩ MASS. HIST. SOC.

THE

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1860.

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ASTOR, LENOX AND
TILDEN FOUNDATIONS
1898

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GOVERNMENT OF THE ASSOCIATION

FOR 1860.

PRESIDENT,

PELHAM BONNEY.

VICE-PRESIDENT,

FRED. H. STIMPSON.

TREASURER,

OSMYN BREWSTER.

SECRETARY,

JOSEPH L. BATES.

TRUSTEES,

NATHANIEL ADAMS,
AMOS C. SANBORN,
WILLIAM W. WHEILDON,
JOSEPH T. BAILEY,
JONAS FITCH,
THOMAS E. CHICKERING,
EBENEZER JOHNSON,
NATHANIEL J. BRADLEE,
JAMES TOLMAN,
ANSEL LOTHROP,
JOHN C. HUBBARD,
CHARLES WOODBURY.

The Government of the Association, organized as follows, constituted the

BOARD OF MANAGERS OF THE EXHIBITION.

EXECUTIVE COMMITTEE.

To prepare all circulars and advertisements; to appoint the Judges and give them their instructions, receive and examine their reports; and award the premiums to the contributors.

PELHAM BONNEY,
Chairman.
FRED. H. STIMPSON,
WM. W. WHEILDON,

JOSEPH L. BATES,
Secretary.
OSMYN BREWSTER,
JOSEPH T. BAILEY,

NATHANIEL ADAMS.

COMMITTEE OF ARRANGEMENTS.

To have the entire charge of the Halls of Exhibition; to have the same properly prepared; to adopt such rules and regulations as they may deem necessary for the reception, preservation, and display of all articles received, and to attend to the delivery of the same at the close of the Exhibition.

The Vice-President, as Chairman of this Committee, is to exercise a general superintendence over this department; to nominate all sub-committees, all clerks, police, and other assistants, which may be necessary, subject to confirmation by the Committee.

FRED. H. STIMPSON,
Chairman.
JONAS FITCH,
EBENEZER JOHNSON,
ANSEL LOTHROP,
AMOS C. SANBORN,

NATHANIEL J. BRADLEE,
Secretary.
THOMAS E. CHICKERING,
JAMES TOLMAN,
JOHN C. HUBBARD,
CHARLES WOODBURY.

RULES AND REGULATIONS OF THE NINTH EXHIBITION.

I.

Articles intended for exhibition and premium should be delivered at Quincy and Faneuil Halls, on or before Saturday, September 8. Checks for the same will be given, which must be presented when the articles are returned.

II.

Apprentices entering articles of their own production, if required, must give a certificate from their employers, stating their names, ages, and the time they have served.

III.

Articles intended for sale will be labelled accordingly, but cannot be removed until the close of the Exhibition, except by written permission of the Committee.

IV.

Proof of origin must be furnished, if required, for every article offered for premium.

V.

A Board of Judges will be appointed, to examine and report upon all articles presented, and the Executive Committee will award premiums on such articles as they shall declare most worthy. The premiums to be delivered as soon as they can be prepared.

VI.

The morning of each day, until nine o'clock, will be appropriated to the Judges; and no other persons will be admitted during the time thus appropriated.

VII.

Steam power will be provided, that Machinery of all kinds may be seen in actual operation; and the Managers respectfully suggest to Inventors and Proprietors, that this arrangement will afford an invaluable opportunity for displaying the advantages and capabilities of their various machines, in competition with others, under one view; so that there can be no question as to their relative merits.

VIII.

It is particularly requested that every person who offers a new machine, or an improvement on an old one, will leave at the Clerk's office a description of its peculiarities, that the attention of the Judges may be called thereto. Contributors or Judges desiring to communicate with each other will leave their communications with the Clerk at the central office.

IX.

Whenever the articles will permit, the Contributors are requested to exhibit their goods in glass cases. All articles deposited will be at the RISK OF THE OWNERS. The most effectual means will be taken, through the agency of the Police and otherwise, to guard and protect the property in the Exhibition; but the Managers cannot be responsible for losses that may be occasioned by theft, accident, or damage of any kind.

X.

Gunpowder and Fireworks will not be allowed in the Halls; and the Managers reserve the *right to reject any article that they may deem objectionable.*

XI.

Owners or agents, offering articles for premium or exhibition, will receive Tickets of Admission; *but in no case transferable.* If transferred, the right of admission will be forfeited.

INSTRUCTIONS TO THE BOARD OF JUDGES.

The Judges are invited to examine with great care every article submitted to their inspection, and to make such report as its merits may, in their opinion, warrant.

There will be four grades of award, viz:—

No. 1. A GOLD MEDAL, which will be granted only for very valuable and meritorious inventions or improvements.

No. 2. A SILVER MEDAL, for articles of superior workmanship, new applications of material, and improvements in construction.

No. 3. A BRONZE MEDAL, for articles of superior workmanship, but of less importance or utility.

No. 4. A DIPLOMA, for all other articles deserving a favorable testimonial.

Each Committee of Judges will appoint its own Chairman, and notify the Secretary of the same; and report through their Chairman to the Executive Committee *on or before Saturday*, the 22d inst.

Each Committee will receive a book containing a list of the articles they are to examine, and also a book in which to write their reports.

Should the Judges require the attendance of a contributor for the purpose of explaining an article submitted, they will please give notice at the office in Quincy Hall.

The Halls will be open for the Judges each morning, from half past 7 to 9 o'clock.

Should any vacancy occur in the Board of Judges, it is desired that notice may be given to the Executive Committee without delay.

It has always been the wish of the Board of Managers and of the Contributors, that the Awards of Premiums may be announced before the close of the Exhibition; the Managers have not heretofore been able to do this, in consequence of the delay of the Judges in sending in their Reports. It is therefore earnestly desired that the present Board of Judges will send in their Reports on the day above specified, to enable the Managers to effect this desirable object. The office of the Executive Committee will remain open till *nine o'clock*, on the evening of the 22d, for their reception.

N. B. *Whenever a Medal is given, it will be accompanied by a Diploma*

REPORT OF THE MANAGERS.

THE Government whom, as a Board of Managers, you invested with full powers to conduct the Ninth Exhibition, having completed their labors, beg leave, in a brief statement, to "give an account of their stewardship."

Soon after their appointment, they met, organized, in the usual manner, in two Committees, and adopted a code of By-Laws; and then, by numerous advertisements in papers in various parts of the country, and by the liberal distribution of circulars, invited the co-operation of all classes of their fellow-citizens.

A good response was made to this appeal. About seventeen hundred persons, from various parts of the country, from those engaged in most all branches of industry, contributed, and our halls were filled with the products of their skill and ingenuity. In the language of the circular issued by the Managers, "the importance of such exhibitions is everywhere acknowledged; and their recurrence enables us to measure with certainty the progress in manufactures and the arts." Viewed in this light, the Ninth Exhibition, held after a lapse of *four* instead of *three* years, as heretofore, compared favorably with its predecessors, and the progress marked is far greater than in former years; it being by all acknowledged to be, in the variety, usefulness, and perfection of articles presented, particularly those of machinery and new inventions, far before any hitherto held under our auspices; so many, indeed, were the offers in this department, that we were obliged to devote two whole sections in Quincy Hall to their display, and to refuse many articles offered, for want of room to exhibit them. The marked feature in this department was the boot and shoe manufacture, one of the most important of New England interests. This, for the variety, novelty, completeness, and perfection of its machinery, attracted universal attention, and excited the admiration of all who witnessed it.

One important branch, however, that of cotton and woollen manufactures, was, to our great regret, not so well represented. Our manufacturers *can* make as good a display, for variety and excellence, as can be made anywhere, and it is to be hoped that, at the next Exhibition, measures will be taken, by direct appeals to the various manufacturers of cotton, silk, and wool, and by the assignment of "large and ample space," and "proper light," to interest them all, and bring them together in friendly competition.

The same amount of space as that used at the last Exhibition, viz: the whole of Faneuil and Quincy Halls, including the "upper room" of the former, for musical instruments, was used, and we could have filled a much larger space if we had had it. The Exhibition was opened on the twelfth of September, and closed on the evening of the third of October. It was visited by a large number of persons, and the pecuniary result, which will appear in the annual account of the Treasurer, will, we trust, be satisfactory.

We should be unjust to the Association did we not acknowledge their obligation to the large body of contributors who so generously responded to our invitation. The Managers did all they could,— provided the halls, the attendants, the machinery and power; but unless *they* had come, with their beautiful and valuable contributions, all would have been in vain. May we not add the hope that these contributors will find, in the opportunity thus afforded of showing their productions to the many thousands of persons who visited our halls, and the powerful and valuable aid of the press, so liberally bestowed in describing them, and calling the attention to them of those who could not visit them, ample remuneration.

Our acknowledgments are also due to the Boards of Judges for the patience and assiduity with which they attended to the arduous and ofttimes perplexing duties assigned them. The value of their labors consists not only in their deciding the comparative merit of the various articles, and designating the awards, but in what is of far more consequence, the elaborate, able, and critical descriptions which they give, and which the Association publish and widely circulate.

The reports of the Judges will be found in the following pages, and it will be noticed that, in consequence of the large number of articles, and the fact that full catalogues of them all have been published and widely circulated, the Editor has, in obedience to a vote of the Executive Committee, omitted all articles not commented upon by the Judges.

It has always been the custom of the Executive Committee, in accordance with a rule previously declared, on the receipt of the reports from the Judges, *to make the awards*, and sometimes they are not made in exact conformity with the recommendations of the Judges. As this subject had been somewhat misunderstood, the Committee embraced the opportunity offered at the meeting of the Judges, (called to deliver their books and the lists of the articles they were to examine,) to explain the principle upon which this was done, and the extent which they proposed to go in changing the awards, viz: "While the Executive Committee defer entirely to the opinions of the Judges in regard to the relative merit of any article, as compared with others of the same class, and will abide by their decision as to which of two or more articles of the same class offered for competition is the best, and deserves the highest award made to any article in that class; and, while they are willing to listen with favor to their opinion as to the *grade* of award, yet as they (the Executive Committee) have established certain rules in regard to the grades, and as the various Boards of Judges sometimes differ in their construction of those rules, and in their estimate of the value of one class, as compared with other classes, the Executive Committee must reserve the right of reviewing their recommendation in this particular, whenever the occasion, in their judgment, calls for it."

The number of awards made is as follows: —

Gold Medals	18
Silver Medals	136
Bronze Medals	192
Diplomas	368

In accordance with the usual custom, a festive entertainment was held on the evening of the 26th of September. This was held in our own Hall, and to it we had the pleasure of welcoming many of our distinguished fellow-citizens of this and other States, many of the contributors, and many of our members, all of whom were invited. An excellent and instructive Address was delivered by the Hon. Emory Washburn, one of our esteemed honorary members; after which the company were invited to partake of refreshments provided in the lower hall of our building. It was a pleasant gathering, held in our own beautiful hall, the first of the kind to which *all* the members have been invited, and the only regret was that *all* the members could not have accepted the invitation.

The Managers indulge the hope that this the "Ninth Exhibition" will be productive of as much if not more good to the contributors and the community at large as any of its predecessors, and that all the former, if they have not already received at the hands of the Judges and the Executive Committee that measure of praise which they expected and thought themselves entitled to, will find in the verdict of a discriminating public, evidenced by increased demand for their productions, ample remuneration for all their efforts.

To the great loss and regret of all the members of the Board, our worthy President has been confined by severe sickness for several months, and was unable to be with us, or take part in our duties. This Report is therefore signed by

FRED. H. STIMPSON,
As Chairman.

BOSTON, Dec. 4, 1860.

The reader is requested to make the following corrections : —

On page 29, 16th line from bottom, for S. A. HEATH & Co. read J. P. HEATH.

On page 38, 4th line from top, for *Diploma* read *Bronze Medal.*
" " 62, 6th line from bottom, for *creditably* read *evidently.*
" " 63, 16th line from bottom, for *tide that* read *tide so that.*
" " 65, 3d line from top, for *best* read *most useful.*

REPORTS OF THE JUDGES.*

Reports of the Judges upon the various Articles exhibited at Faneuil and Quincy Halls, at the Ninth Exhibition of the Massachusetts Charitable Mechanic Association, classified under their proper Heads, with the Names of the Judges, and the Awards of the Committee on Premiums.

MACHINERY AND NEW INVENTIONS.

Thomas Blanchard,
Jeremiah Myers,
Increase S. Hill,
Holmes Hinckley,
L. A. Cutler,
William Burnett,
J. C. Hoadley,
Augustus Eliaers,
Albert Betteley,
C. E. Rymes,
Irah D. Spaulding,
Luther Briggs, Jr.,
Joseph W. Wright,
James B. Francis,
C. C. Walworth,
Judges.

The Committee on Machinery and New Inventions, in submitting their Report, beg leave to state that, although in the examination of the articles submitted to them, they have occupied several days more than the specified time within which it was your expressed desire that this Report should have been made; yet, even now, they are far from being satisfied that they have given the various articles of ingenuity and usefulness that have come before them, the full measure of investigation which their merits and importance demanded.

---

* By a vote of the Executive Committee, the Editor was authorized to omit, in the printed Report, *all articles not commented upon by the Judges.*

Having no more reason than others that have preceded us in similar duties, to assert the infallibility of our judgment in the conclusions arrived at; in which particular, however much to be regretted, while our consciences excuse us from all intentional wrong, we find our chief consolation in the opinion expressed by a former Committee, that the consequences will be but temporary.

In constructive Mechanism, substantial and tried utility is the ultimate test of every *new* production or invention, and the truly meritorious and successful inventor will probably find his surest reward, not so much in the approval of Committees or the patronage of institutions, as in the substantial value of his discoveries, seconded by his own direct personal energy, and approved by the severe, but finally just discrimination of an appropriating and ever watchful self-interest on the part of the community.

On review of its duties, your Committee believe that this portion of the Exhibition will compare favorably with former years, both in variety and improvements.

The periods between your Exhibitions are comparatively too brief to present to the casual or even to the critical observer, *many* marked and striking improvements at each occasion.

To realize the progress of improvement (which your Association has done so much to encourage) in greater force, we have but to carry our memories back to a period within the recollection of the youngest of your Committee, that of your first Exhibition, and there look in vain for the Sewing Machine, the Daguerreotype, the Electric Telegraph Apparatus, the Electrotype, and other entire arts, then unknown, which, in their various modifications, form no inconsiderable part of the attractions and interest of this occasion.

In abridgment of its labors, and as we now believe, greatly contributive to its efficiency, the Committee, after its organization, divided itself into a number of sub-committees, the appointments to which were made, as far as possible, from real or presumed experience and qualifications to judge of certain classes of articles. To which sub-committees the different articles on the list committed to us were appropriately referred. The Reports of the sub-committees were afterwards read, discussed, amended, and adopted in General Committee of the Whole; and the following notices of the various articles, and the Premiums recommended, are submitted as the united judgment of our entire body.

STEAM ENGINES, &c.

59. C. B. LONG, *Worcester, Mass.* Slide Valve Seat Planer. This machine is well made, its working parts accurately fitted and finished, and it is well adapted to the purpose designed. *Silver Medal.*

61. **Samuel Pierce**, *Cambridgeport.* Weighing Scale. Its novelty consists in lengthening the beam, instead of moving the weight upon the beam.

82. **Bestwick & Alden**, *Dedham, Mass.* Car Couplings. These have friction rollers, made of rubber, by which the shackle is held in a horizontal position while the cars are being coupled. This coupling is entirely self-acting, and for safety and simplicity, we consider it equal to anything of the kind within our knowledge. It is well worthy the attention of Railroad managers, as a method of coupling cars without the necessity of going between them, and therefore of great importance. *Silver Medal.*

90. **G. K. Paul & Co.**, *Boston.* Portable Engine and Boiler. A very neat, compact, and well-made portable Steam Engine and Boiler. Although there is nothing new in this machine, it is so well got up that we consider it entitled to favorable notice. *Diploma.*

499. **John, Jr., & Frank E. Howe**, *Brandon, Vt., and New York and Boston.* Improved Standard Scales. A large variety was exhibited. They are the result of several years' experience; have been subjected to the most severe tests and the hardest usage, and have not failed in any instance to give satisfaction. Your Committee spent considerable time in examining and testing several among the many on exhibition, and found them quite sensitive and perfectly accurate. One, designed for hay, cattle, or coal, to weigh ten (10) tons, with a platform 8 × 15 feet, was loaded, with from 50 to 2,000 pounds upon the different corners of the platform, and at every trial gave accurate results.

Howe's Improved Dormant Scale. A part of the above-named lot is a very decided improvement over the drop lever scale, as the beam remains *quiet* while lowering the platform, thereby avoiding unnecessary wear on the pivots and knife edges. This Scale was also found to be remarkably accurate under the severest tests.

The Committee also examined one of Howe's Railway Scales, which, for want of room in Quincy Hall, was set up in the Contributors' Store, in Congress Street, and there examined and tested. They consider this Scale better adapted to railway purposes than any other with which they are acquainted. *Gold Medal.*

101. **New England Car Spring Co.**, *Boston.* Rubber Car Springs. A well known article; much used, and highly approved.

118. **Samuel Nicholson**, *Boston.* Rail for Steam and Horse Car Railroads. A wrought-iron rail, placed upon a continuous cast-iron bed. The Committee cannot see any advantage from this arrangement.

129. **James M. Cook**, *Taunton, Mass.* Two Car Ventilators. These are now in use on many Railroads, and add much to the comfort of the traveller. They received a Bronze Medal at the exhibition of 1856.

130. **Burnham and Cook**, *Taunton*. Railroad Bridge Signal. Intended to give notice to any one upon the top of a car, of their near approach to a bridge, and consequent danger.

247. **Tarbell and Simonds**, *Boston*. Steam Boiler. Model of an upright Steam Boiler. The furnace of this Boiler is filled with tubes, through which the water circulates, while the fire comes in contact with their outward surfaces. It is well known, that boilers on this plan, generate steam rapidly; but, in this case, the Committee see no facility for repairing or replacing the tubes, an important matter to be taken into the account in the construction of all boilers on this plan.

262. **E. S. Coffin**, *Boston*. Design for improved Draw or Shackle Bar, for Railroad Cars. An arrangement by which the Shackle is held in a horizontal position by the application of the *foot* of the brakeman, upon the shackle-pin, while shackling the cars.

328. **Mass. Caloric Engine Co.** *South Groton, Mass.* **James A. Howe**, *Agent, Boston*. This new motor was in operation a greater part of the time during the Exhibition, and attracted much attention. It appeared to work satisfactorily, although the Committee had no opportunity of ascertaining the power it was capable of exerting. The movement of some of its parts is rather abrupt; but, as this arises from a vital necessity, it can hardly be looked upon as a thing to be overcome or corrected. The valves are also a little noisy, but will probably be improved in this regard, as experience points to a form or material better adapted to the required conditions. The motive power employed in this Engine is *hot air*, and the modification exhibited is the result of the most constant and untiring efforts of the inventor, Capt. Ericsson, who, after much labor and many disheartening failures, extending over a period of thirty years, has at length given to the world a new motor, practical in its character, safe in its operation, and claimed by the inventor to be, for small powers, not only much more economical than steam, but absolutely free from danger. Whether the claim of superior economy is well founded or not, we are well satisfied that, for a great number of purposes, the Caloric Engine is no longer an experiment. This is evidenced by the very flattering testimonials received of the efficiency and usefulness of a large number now in daily use in various parts of the country. It is convenient, portable, and compact; no boiler is required, and it can be safely operated by any person of ordinary intelligence. Their freedom from all danger of explosion, renders them applicable for

small powers in numerous cases in which the want of the engineering skill necessary to its safe management, prevents the employment of a Steam Engine. This motor, in order to be successful, is not required to possess a sufficient degree of excellence or economy to *supplant the steam engine,* but it will supply an extensive want in a direction now unoccupied.

Gold Medal.

333. L. Stephenson & Co., *Boston.* Platform Balances. The Stephenson Scale, once known as the "Dearborn Scale," is now presented, with certain modifications and improvements. It has, for a long time, been favorably known to the public, and is in extensive use. It has been brought to great perfection by the skill and long experience of its manufacturers, and the Committee do not know of any Scale more correct and reliable; they were much pleased with the sensitive operation of the sixteen scales on exhibition. These scales received a Silver Medal at the last Exhibition, and those now exhibited fully sustain their reputation.

386. E. H. Ashcroft, *Boston.* Case of Steam Gauges, Low-Water Detector, and Ratchet Drill. A noticeable feature in the construction of these Steam Gauges is the substitution of a *chain* movement, for the ordinary rack and pinion in general use. This arrangement appears to have some advantages, but use alone can determine satisfactorily its comparative merit. There was also exhibited a *compound tube,* as an improvement on the single tube, of the Bourdon Steam Gauge. The Committee consider this a decided improvement, and recommend a *Silver Medal.*

Ashcroft's Low-Water Detector for Steam Boilers. A very important appendage to Steam Boilers, simple in its construction, reliable in its operation, and greatly tending to the security of life and property.

Silver Medal.

Ashcroft's Ratchet Drill. Well finished, and a good mechanical arrangement.

478. American Steam Gauge Co., *Boston.* Case of Steam Gauges. This important appendage to Steam Boilers, as manufactured by this Company, has been much improved, both in workmanship and in design, since its last exhibition at Boston. The Gauges on exhibition, embracing the Lane improvement (so called) are decidedly superior in their arrangement to those originally manufactured by this Company, under the Bourdon Patent; and for this improvement the Committee award a *Silver Medal.*

551. American Steam Gauge Co., *Boston.* Steam Whistles. A variety of sizes, well finished. These articles will make their own reports, and need no commendation from the Committee.

599. **Jerome Wheelock**, *Worcester.* **Steam Engine and Governor.** The only novel feature in this machine, consists in the application of springs to the arms of the governor, in such a manner as to resist, in a certain degree, the centrifugal action of the balls, so that a higher degree of speed is requisite for an equal expansion of the same. By this arrangement, the governor is made extremely sensitive to changes of speed in the prime motor, and a nicer regulation is secured. *Diploma.*

637. S. Heywood, *Claremont, N. H.* Model of a Railroad Switch. So arranged that the frog is brought on a line with the rail when the switch is changed; giving a continuous rail, in order to save the wear of the machinery in passing over the ordinary frog. It is worthy the attention of Railroad managers, who can best decide upon its utility.

649. Steam Boiler Feeder Co., *Worcester.* Steam Pressure Regulator, Chronometer Governor Valve, and Stop Valve. The "Steam Pressure Regulator" is a device for modifying the pressure of steam in its admission into steam-heating pipes, and in other like cases, where a uniform and low pressure is desired. It is quite perfect in its action, and will do all that is claimed for it. *Silver Medal.*

The Governor and Stop Valves above referred to, the Committee believe are excellent articles of their class.

657. J. L. Eastman, *Boston.* Two Steam Gauges. This Gauge has been long known to the public, and is now presented with a much improved form and appearance. It received a Silver Medal at the last Exhibition.

669. T. H. Witherly, *Worcester.* Rotary Steam Engine. In the history of the Steam Engine, the "Rotary" early claimed the attention of engineers, under the belief that certain disadvantages accrued from the employment of a crank; and from that time to the present, it has been the favorite study of the tyro in steam machinery. But science has long since dissipated the unfounded prejudice above referred to, and the crank still holds its sway, as the most beautiful device for controlling and directing the enormous pressures employed in large and ponderous engines, and the movements of the most rapid machinery. Large sums of money and much valuable time have been expended in the attempt to construct a Rotary Engine that would compare favorably with the Reciprocating Engine; but so far without any such practicable result. The Committee cannot see, in the present modification, any such advantage over others of its class, as would place it by the side, even, of the present ordinary "Reciprocating Steam Engine."

717. Globe Locomotive Works, *Boston.* Oscillating Steam Engine. This Engine is the invention of L. W. Langdon, and the object of the inventor has evidently been to produce a compact machine, with as little fric-

tion and as few parts as the nature of circumstances would admit. This he has effected in a surprising degree, the arrangement being simple, and the valves relieved from pressure. Oscillating Engines are now frequently used for marine purposes. They are well adapted for that service, and also for places where the saving of room is an object. *Silver Medal.*

757. E. Whiteley, *Boston.* Glass Tube Water Gauges. A good and useful article; well made and well arranged, having a new method of packing, by which the glass tube is effectually prevented from coming in contact with the brass casing. This contact has been heretofore a great difficulty in the use of these instruments, resulting in frequent destruction of the glass tube. *Bronze Medal.*

786. Benjamin F. Bee & Co., *Boston.* Water Gauge and Indicator. This Gauge not only indicates the height of the water in steam boilers, but it also controls the action of the feed pump, with so much regularity and certainty, that it is hardly possible for the height of the water in the boiler to vary more than half an inch at any time. It is very ingeniously arranged and substantially constructed, and we cannot see that it is at all liable to get out of order. We believe it to be a valuable instrument for the purpose designed, adding much to the convenience, safety, and economy of working Steam Boilers. *Silver Medal.*

794. Hiram E. West, *Attleborough, Mass.* Machine for Pressing Bonnets. This machine is designed to lessen the labor of pressing bonnets, as well as to do the work better and more rapidly than by the mode at present employed. The one exhibited will do the labor of ten men with apparent ease to the operator. It is very compact, and simple in operation. It consists mainly of a finished cast-iron mould, surrounded by a steam chest, together with an expanding bonnet block, having an elastic covering, upon which the bonnet to be pressed is placed, and then forced into the warm cast-iron mould by means of a screw; the whole being constructed with great simplicity of form and parts.

The Committee consider this a most excellent invention, and one which, as it will tend to reduce the price of bonnets, should be hailed by the ladies. *Gold Medal.*

798. J. W. Hoard & Geo. B. Wiggin, *Providence, R. I.* Steam Trap Valve Condenser. This Trap Valve is simple in its construction, and comparatively small in its dimensions. To all appearance, it must be perfect and reliable in its operation. As the specimen on exhibition was not connected with any heating pipes, the Committee could not see it in actual operation, but from the testimonials presented from reliable parties, who have them in use, and from their own knowledge of its construction, they are of the

opinion that it is well adapted for the purpose intended, and of sufficient capacity for a very large circulation. *Silver Medal.*

838. Knowles & Sibley, *Warren, Mass.* Steam Pump and Jack Screws. This Pump is a decided improvement over all other Steam Pumps known to the Committee. It may be located in any part of a building, and instantly set in motion from any other part. It may be placed in the hold of a steamboat, and instantly set in motion from the *deck*, or engine-room, with the absolute certainty that the pump will *immediately* work. As a security against *fire* on board of steamers, or in manufacturing establishments, it is unsurpassed. It is compact and simple in construction, and controllable to any speed or length of stroke within the limits of its cylinder heads. The Committee have never seen a Steam Pump that was more satisfactory, both in construction and performance. *Gold Medal.*

This Pump, under the control of the Bee's Water Gauge, was used to feed the boiler connected with the Steam Engine in operation at the Exhibition. To the same boiler was attached Clark's fire regulator and damper. These three simple appendages performed their functions with almost inconceivable correctness and regularity.

The Jack Screw exhibited by the Messrs. Knowles & Sibley is well made, and by a very simple contrivance is made to possess all the advantages of a reversible ratchet movement. The low price for which they are sold ($5.00) must ultimately bring them into general use.

429. Clark's Patent Steam and Fire Regulator Co., *New York.* Clark's Patent Steam and Fire Regulator. This Regulator controls the damper of the furnace, and while there is the requisite amount of fuel in the furnace, it will keep a uniform pressure on the boiler by closing or opening the damper. It is simple in construction, and a valuable appendage to the steam boiler, as it prevents undue pressure and saves fuel.

Silver Medal.

843. John White, *East Boston.* Railroad Car Replacer, Model Car, and Three Jack Screws. Mr. White now presents his Car Replacer to the Committee, as, in some respects, an improvementon the one he offered at the last Exhibition. Such machines as these, if located at every station along the lines of railroads, might occasionally be very useful. The Committee recommend them to the favorable notice of Railroad Managers. *Diploma.*

898. Bridges & Long, *Boston.* Hair Felting. An excellent article, well made, and much used as a non-conductor of heat, for steam boilers, pipes, &c. *Bronze Medal.*

935. Atlantic Works, *East Boston.* Steam Engine. This is the

stationary Steam Engine which furnished motive power for the Exhibition, and was built by the exhibitors. It is beautifully finished, and is judiciously and elegantly proportioned in all its parts. It also worked very smoothly and steadily, and challenged the admiration of all, not only by the excellence of its finish, but by its very tasteful design, and the great regularity of its motion.

We would here remark that the steam engine of the present day, is almost necessarily somewhat more complex than that of an earlier period, on account of the nice adjustments of speed, and rigid economy of fuel required to meet the demands of fine manufacturing, and the closest competition in all branches of industry. In the march of improvement, these demands have been sometimes met by giving to certain vital parts of the machine, merely an improved form, which embodied in a higher degree the laws applicable to the particular requirement. This expedient, however, is not available in all cases, but the addition of new and delicately working parts is required, without the aid of which the fullest economy cannot be attained. Each avenue of loss has also to be carefully guarded, and the greatest simplicity of parts, compatible with the functions to be performed, in all cases to be secured. The builders of the Engine on exhibition, which has a cylinder of fifteen inches diameter, and forty-two inches length of stroke, appear to be fully aware of the importance of perfecting the details of the machine, as well as caring for its more general proportions, in order to secure that continued well working and uniform rate of economy necessary to give character to their manufacture. This Engine is furnished with *variable expansion valves*, which, however, are somewhat limited in their range of operation, not cutting off steam at a later point, when working maximum, than three eighths of the stroke from the commencement, the speed of the Engine being regulated by the valves closing their ports variably from the beginning of the stroke to the point above named; the changes being effected by an attachment to the "Governor." This arrangement of expansion valves works so noiselessly and effectively within its range, that it is to be regretted that the device does not admit of carrying efficiently the limit of cut-off further into the stroke, which would add to the capacity of the Engine to overcome occasional severe resistance. The *main slide-valve* of the Engine is partially balanced by connection with a counteracting piston, upon which the pressure acts, relieving the faces in a great measure from friction. The cylinder is also furnished with a well-arranged *steam jacket*, into which the direct steam from the boiler is introduced, the object being to keep the metal of the cylinder at so high a temperature that no condensation of steam can possibly take place within it, during the working of the Engine. Steam jackets with direct steam, for Engines using very high pressure and great expansion, have been quite extensively employed in some of the mining districts of England, and it is asserted that considerable benefit has resulted from their use in such cases. This appears somewhat anomalous, considering the fact that the steam in the jacket, which is of the maximum pressure employed, is continually exposed to the cooling effect of the atmosphere, in the same manner as the cylinder itself when no jacket is employed. The result claimed, however, is sufficiently well attested through the ordinary channels, to claim the attention of all who are interested in bringing to the highest state of perfection, the noblest and most useful of all the agents that minister to the wants or necessities of man. *Gold Medal.*

The two *steam boilers* placed in South Market Street, which furnished steam for the above and other engines in the Exhibition, were also built by the Atlantic Works, and as far as they could be examined, appeared to be of excellent workmanship,

973. CAMPBELL, WHITTIER, & CO., *Roxbury, Mass.* Fan Regulator. This fan regulator is a very sensitive governor for 'a Steam Engine, is compact, and direct in its action; and a great improvement upon the method of using the old Fan Governor. *Silver Medal.*

998. WHIPPLLE FILE MANUFACTURING CO., *Ballard Vale.* New invention for cutting files. Some of the files made by this Company (samples of which were on exhibition) were made by *machinery*, others by hand. Many attempts have been made in years past by ingenious mechanics, and large amounts of money expended, to make good files by *machinery*, instead of hand power, but hitherto with little progress. Previous to the Whipple invention, we understand the inventors of file-cutting machines have invariably endeavored to *imitate* the action of the hand in cutting *the tooth* of the file, by striking the chisel with a hammer. In the Whipple machine, an entirely different principle is brought into operation; the tooth of the file being made by the motion of a rolling *circular cutter* passing across a number of file blanks at the same time. One set of these machines (three in number) is tended by one man, cutting 24 files at a time, easily making 12 dozen files per day. These works have been in operation but a few months, and their files are consequently but little known; but so far as the Committee know, they have uniformly given satisfaction; and from the trial made by the Committee, with the *machine* made files, and those made by *hand*, they give the preference to those made by their machines; they are of opinion that, ultimately, these machines are destined to come into general use for making files, as, upon them, files of any *width* or *grade*, from the *coarsest* to the *finest cut*, can be made. The Committee consider this machine, in the hands of competent workmen, capable of producing *better* files, at *less cost* than it is possible to produce by hand.

Silver Medal.

2022. Newhall and Stebbins, *Hinsdale, N. H.* Steam Boiler Feeder. This is an ingenious instrument for regulating the feed to Steam Boilers; it seems to act regularly and effectually, and is constructed on reliable principles. *Bronze Metal.*

567. C. W. Brown, *Boston.* Mill Spindle and Bush. An ingenious arrangement of immersing the box and bearing of vertical shafts or revolving spindles in a large quantity of oil or other lubricating substance, so that no further attention is required in this regard, until the lubricator is all used up; a highly useful device for grinding-mills, and other like machinery. *Bronze Medal.*

640. Chas. A. Ingram, *Boston.* Saw Grinding Machine. This is a model, and has all the requisites of a good working machine for the purpose. *Diploma.*

681. Dana, Newman, & Co., *Boston.* Three-Tube Punch. This is an instrument for punching leather or shoes, and punches three holes in one movement. *Diploma.*

686. M. F. Anderson, *Boston.* Smut Machine Model, well known, and a good working machine. *Diploma.*

171. George B. Sargent & Co., *Boston.* Case of Embossing Presses. Good articles.

2018. T. M. Coffin, *Plymouth, Mass.* Drill Stock. Well made and highly finished. *Diploma.*

15. Samuel L. Hay, *Reading, Mass.* Universal Shaft Coupling, Draft Regulator. This Coupling is particularly adapted for use in Propellers' Shafts, admitting angular and lateral deviations of the several sections composing the Shaft, thereby preventing the great strain which takes place in the bearings of rigidly coupled Shafting when out of line. *Bronze Medal.*

Draft Regulator for regulating the draft of House Furnaces. *Diploma.*

180. James Garland, *Boston.* Double Acting Bellows for Blacksmiths' use. Creates a uniform and steady blast.

186. Keene & Co., *Worcester, Mass.* Vibrating Shears. An excellent machine for Book Binders and Paper-Box makers' use, and worthy of a *Bronze Medal.*

283. James Cumming, *Boston.* Centering Machine. This is a machine for centering and drilling Shafts and Bolts preparatory to turning. A great labor-saving tool for machinists' use, worthy of a *Bronze Medal.*

546. Amos H. Brainerd, *Boston.* Paint Mills of different sizes.

These mills are of a new and improved pattern, and have proved to be excellent mills for grinding colors; for the improvement a *Bronze Medal.*

863. William L. Stephenson, *Hingham, Mass.* One foot Lathe with Chuck and Slide-Rest. This is a small foot Lathe calculated for Iron, Brass, or Wood turning; is of a very neat design and well finished. Four-jawed chuck, also highly finished. *Diploma.*

533. Shepard Lathe Co., *Worcester, Mass.* Eight foot Screw Lathe. A well-finished Lathe for turning and screw-cutting; has an ingenious device for changing feed motion. *Diploma.*

864. Geo. H. Fox & Co., *Boston.* Two Machinists' Chucks, two Brass-finisher's Chucks. These Chucks are of the ordinary independent, two and four jawed principle, with screws to set them up. Well finished. *Diploma.*

401. Parkers, Snow, Brooks & Co., *West Meriden, Conn.* Two Punching and Shearing Presses, calculated to work by hand or power, are very neat in design, and well finished. Excentric motion, with an improvement of steel plates, above and below the box, made adjustable to lengthen or shorten the drop of punch or shears. *Bronze Medal.*

604. E. Harrington, *Worcester, Mass.* By A. J. Wilkinson & Co., *Boston.* Four pairs Lever Shears. These Shears have an ingenious device for obtaining the power, consisting of two Rolls toothed upon one side and working one over the other upon an inclined plane, bringing the power immediately over the cut at all times. *Bronze Medal.*

60. Timothy F. Taft, *Worcester, Mass.* Smith's Shears. These are excentric shears, intended for hand or power. Durable, simple, and powerful machine. *Diploma.*

188. George W. & F. Smith, *Boston.* Specimens of Forging. Hook, Tongs, &c. Very good work.

335. James Massey, *Boston.* Improved Vises. Four Anvils, excellent specimens, one large vise particularly well finished.

963. Wm. H. Woolley, *Boston.* Vise. Well made wrought-iron Vise.

240. Silas Stevens, *Worcester, Mass.* Machinists' Tool Stock. An ingenious contrivance for Lathe-turning tools, arranged to admit any shaped tool, without taking the stock from the Lathe. *Diploma.*

341. Jos. W. Fowle, *Boston.* Key Planing Machine. Good machine for the purpose of planing Lock Keys.

452. Edw. Page & Co., *Lawrence, Mass.* Leather Belting, Lace Leather. Belting is of excellent stock, well put together, and of even thickness. Lace Leather very strong and durable. *Silver Medal.*

520. STOWELL BROTHERS, *Concord, N. H.* Sheet-Iron Folding Machine. This is a machine for folding the edges of sheet-iron preparatory to making it into stove-pipe or other articles. The exhibitors claim great expedition in the work. It appears to the Committee to be an excellent article for the purpose. *Bronze Medal.*

523. DARLING & SCHWARTZ, *Bangor, Maine.* Case of Machinists' Tools. This case contained Squares, Scales, and Gauges, of most excellent finish and remarkably accurate. *Silver Medal.*

567. C. W. BROWN, *Boston.* Mill Stones, Pick, Spindle, &c. Good articles, well made. One solid French Burr stone, 4½ feet diameter, unusual size for a solid stone. Other mill-stones of excellent workmanship. *Diploma.*

657. CHAS. H. BAKER, *Boston.* Hoisting and Folding Crane. This Crane is designed for the use of Iron Foundries, Machine Shops, &c., and is so arranged as to fold to pass a post or column, or thrust through a window or door.

327. A. J. WILKINSON & CO., *Boston.* Case of Machinist's Tools. A very beautiful display of a variety of machinist's tools, of excellent finish and design. *Diploma.*

549. LE ROY J. CHERRINGTON, *South Boston.* Improved Pile Driver. This machine has the nipper reversed, having the ketches of nippers upon the outside instead of inside. The Committee do not see the improvement.

834. A. J. WILKINSON & CO., *Boston.* Blacksmiths Drill, Money Drawer, Clamp Drill, a handy tool. Money drawer has an alarm to guard against thieves.

851. S. W. & R. M. DRAPER, *Boxboro', Mass.* Machine for dressing Mill Stones. As far as the Committee can judge from the model, the machine will do the work intended.

140. WM. ADAMS & CO., *Boston.* Bell Yoke and Frame. This is a good device to adjust the balance of Bells by duplicate centres.

286. GEO. H. FOX & CO., *Boston.* Lathes. Superior workmanship, designed for Brass-finishers, durable and convenient. *Diploma.*

2001. C. B. LONG, *Worcester, Mass.* Clamp or Hand Drill. A very handy tool for machinist's use, easily adjusted. *Silver Medal.*

845. JAMES BOYD & SONS, *Boston.* Two sections of Patent Hose. The patent Hose of James Boyd & Sons is manufactured of heavy cotton twine, the inner side and lap are coated with a water-proof composition, and it is riveted with copper rivets, similar to the leather hose of their manufacture. Your Committee visited the establishment of Messrs. Boyd, and witnessed

the trial of the hose, under a pressure of 200 pounds to the square inch, and the hose withstood this great strain without any sign of leakage, and under pressure it was perfectly dry on the surface. The advantages claimed for it by the patentees and manufacturers are —

1st. Its strength.

2d. Its smoothness; having no splices, it will deliver water easier and with more force.

3d. It does not sweat or waste water.

4th. It does not require oiling.

5th. It is much lighter than other hose.

6th. It costs 25 per cent. less than leather, and your Committee believe that it has all the advantages claimed for it, and they strongly recommend it. If we grant medals to ingenious mechanics and inventors for their products, we should certainly award a high degree of merit to these gentlemen who have not only invented and manufactured a new and desirable article, but have invented one which may be the means of more effectually saving from destruction the inventions and manufactures of others. *Gold Medal.*

845. LAUGHTON AND BLISS, *Newport, R. I.* Hose Coupling attached to Boyd & Son's Hose. These couplings are fastened together by an inclined plane and set screw with bevelled end to agree with the inclined plane, and rendering the swivel used on screw joints unnecessary. These couplings are much more simple, and are put together with greater facility than others, and, having no screw exposed, are not so liable to be injured by bruising. The joints remain tight when put to severe use. A good article for the purpose. *Silver Medal.*

SAFES.

500. E. R. MORSE, *Boston.* Safe for ordinary business use, of fair quality of workmanship.

767. VALENTINE & BUTLER, by TILTON, WHEELWRIGHT, & Co., Agents, *Boston.* One Safe. Good arrangement for joints of doors to prevent the passage of fire, the other portions of the safe are of fair quality of workmanship. This safe is called by the makers, *alum*-safe, and they challenge other manufacturers in the sum of one thousand dollars to the test of their safes. Of the fire-proof quality of the safe, the Committee have no means of judging.

81. EDWARDS & KERSHAW, *Boston.* Four Safes. All of these safes are excellently made and finished. One of them is of great strength, with superior locks. Another is a sideboard safe with marble top, which the

Committee would especially recommend for the excellence exhibited in its manufacture. They consider these safes the best in the Ninth Exhibition. A silver medal was awarded to these gentlemen at the Eighth Exhibition, but they have improved in the manufacture since, and now deserve for the improvement, a *Silver Medal.*

624. **Fellows & Williams**, *Successors to John E. Wilder, Boston.* Three Safes, of creditable workmanship with double flange doors and wooden doors to the book-case. Claimed by the makers to be a great improvement; but the Committee cannot venture an opinion as to the effect of fire upon safes of this construction.

Mr. Wilder's safes received a silver medal at a former exhibition, and we recommend, for the workmanship on them, a *Bronze Medal.*

624. One Safe for silver plate for house use, not intended for a fire-proof safe, but a good article for the safe-keeping of plate. Well arranged and with a good Lock. *Diploma.*

81. **Edwards & Kershaw**, *Boston.* Locks on their Safes. One, Covert's Patent, is a powder-proof lock without key or keyhole, a good lock for bankers. It is not liable to get out of order, is susceptible of a great variety of changes, the combinations of figures by which it is unlocked being reckoned by millions. It is nicely made. *Bronze Medal.*

Another, Edwards & Kershaw's Patent Powder Bank Lock. A well-made Lock, changeable by an adjustment of the tumblers by a duplicate key fashioned for the purpose, not liable to be locked "false," as is sometimes the case with permutation Locks, and well made in all respects. For the improvement, a *Silver Medal.*

584. **Wm. Hall.** Bank Lock. Mr. Hall received the highest premium at a former exhibition, and this Lock is put in for exhibition only.

292. **Henry Pickford**, *Boston.* Door and Safe Lock. This Lock is ingeniously constructed on permutation principle, well and nicely manufactured, the key and combinations easily arranged. The Committee think this a lock safe as to picking, but somewhat faulty in some parts of its construction, the tumblers being forced down upon a rubber cushion; the operation is not considered quite sure in its effect at all times. With an improvement in this respect we should recommend this Lock. *Diploma.*

WOOD-WORKING MACHINERY, MECHANICAL DRAWINGS, ETC.

4. **Chas. R. McLane**, *Boston.* Two Designs for Flouring Mills. The method of delineation is very clear and distinct, and the Mills are well arranged as far as the Committee can judge. Moreover, they are informed,

from an unprejudiced source, that one of the Mills represented, proves itself a very fine mill as put in execution. *Diploma.*

39. HEMAN HOWE, *Georgetown, Mass.* Saw Filing Machine. The Committee fail to appreciate the merits of this invention.

57. M. ANDREWS, *Bridgewater, Mass.* One Circular Saw. Improved Sectional Taper Circular Saw, with teeth inserted. Evidently a first-class article. *Diploma.*

132. EDGERLY & GARDINER, for PHILANDER EGGLESTON, *Mobile, Ala.* Double Circular Saw Mill. This machine has two saws, and takes a board off from each side of the log (which is suspended and passes over them) at the same time, thus avoiding the well-known difficulty of the springing of the log while in operation. It appears to be a valuable improvement. *Bronze Medal.*

185. F. K. SIBLEY, *Auburndale, Mass.* Emery and Crocus Cloth. A very superior article, and worthy of a *Diploma.*

562. CHARLES SPOFFORD, *West Amesbury, Mass.* Machine for Planing Irregular Forms. This machine planes by a pattern; is adapted for planing a great variety of regular and irregular forms, and can be made *particularly* useful for planing the felloes of wheels and other articles of carriage work. *Bronze Medal.*

956. E. STRANGE, *Taunton, Mass.* Stave-Cutting Machine. Strong, well-built machine.

631. WILLIAM T. CARROLL, *Newton Lower Falls, Mass.* Case of Rings for Ring Spinning. These are made of chilled iron, and are considered an economical improvement on steel ones. *Bronze Medal.*

619. RANSOM & CROSBY, *Newark, N. J.* One Mitre Machine, One Wiring Machine. The mitre machine is a valuable improvement for light work. *Diploma.*

The wiring machine will answer the purpose intended.

651. B. D. WHITNEY, *Winchendon, Mass.* Patent Gauge Lathe. In this machine the final cut is by a shearing motion, whereby a very fine and sharp finish is given to the article turned. *Bronze Medal.*

685. J. A. PEABODY, *Lowell, Mass.* Blind Mortising Machine. A very striking and valuable improvement on existing machines, for cutting the mortises in the Blind Stiles by a series of rotary cutters. There is also a very ingenious device for giving the stile a motion at the requisite angle at which the mortises are to be cut. *Silver Medal.*

785. J. M. FARRAR, *Manchester, N. H.* Planing Machine. Is probably as good as any machine with a chain-bed plate.

808. N. Spoffard, *Haverhill, Mass.*, by Spence & Co., *Boston.* Improved Bit Stock. A good device for taking in a bit of any size and form. *Diploma.*

895. Thomas S. Pemberton, *Roxbury, Mass.* Three Specimens of Mechanical Drawing. The large Drawing of a Forty Horse Engine is very finely shaded; the two smaller Drawings are shaded in altogether too dark a style. The large drawing is considered worthy of a *Diploma.*

195. A. W. Taylor, *East Boston.* Mechanical Drawing. Elevation of Sugar Mill Engine. Very well shaded in India Ink. *Diploma.*

252. N. C. Lombard, *Boston.* Mechanical Drawing. Side Elevation of Locomotive Engine. Very neatly shaded in colors. *Diploma.*

218. A. H. Foster, *East Boston.* Elevation of Sugar Mill Engine. An ordinary specimen of shading.

547. H. O. Peabody, *Winchester, Mass.* Beam Compass Heads. A well-made article for pattern makers.

906. William A. Smith, *Boston.* Frame Bridge Plan. A very light and airy appearing Bridge. The Committee consider that, as a general principle, it would be better to make use of the space between the trusses for the thoroughfare.

2000. Spence & Co., *Boston.* Improved Bench Vise. A new modification of a Parallel Vise, which may answer well for small work.

996. B. D. Whitney, *Winchendon, Mass.* Three Stave Cylinder Saws. They look like good Saws, which is all the Committee can say of their merits without trial.

211. Smith & Otis, *Lyme, Mass.* Patent Bit Stock. One of the many methods for fastening the Bit into the stock. A very good device when the Bit is required to be nicely adjusted.

457. George T. McLauthlin, *Boston.* Double Jawed Clamp Screw. An excellent article for wedging doors, &c. *Diploma.*

232. Gray & Woods, *Boston.* Railway Cut-Off Saw. Good, well-made machine. Nothing essentially new in principle.

507. J. W. R. Hill, *Boston.* Universal Moulding Plane. In the present state of moulding machinery, this invention is not considered practicable.

978. S. C. Kennard, *Newmarket, N. H.* Machine for Measuring Boards. Adapted for measuring boards when passing through a planing mill, giving the exact number of superficial feet. The Committee recommend its general use. *Silver Medal.*

2005. H. B. Smith, *Lowell, Mass.* Blind Style Boring Machine. This is a machine for boring the holes for the swivel slats of Blinds at exact intervals, and at the same time putting in the wires into the swivel rods.
Silver Medal.

232. Gray & Woods, *Boston, Mass.* Wood Planing Machine. A good machine for carpenter's shop-work. A Silver Medal was awarded for this machine at the Eighth Exhibition; but the one now exhibited contains many valuable improvements, which have been invented (and some of them patented) since. For the improvements, the *Executive Committee* award a
Silver Medal.

905. H. Maxwell, *New York.* Model of Shingle Machine. This is a very ingenious Model of a Rotary Machine, for superseding the reciprocating motion given to the Block in ordinary machines, and thus increasing the rapidity of its operation. As far as can be judged from a Model, the plan appears practicable. The Committee are not prepared to recommend any premium at this time, but think the invention may be valuable when more fully developed.

374. S. M. Hamilton, *Baltimore, Md.* Variety Moulding Machine. The original of this machine was exhibited at the Eighth Exhibition, as the Gear & Grosvenor Machine, and at that time received a Silver Medal.

In the hands of its present proprietors, its value has been enhanced by the accession of a number of new and valuable improvements, the production of several inventors; and it stands unrivalled in wood-working machinery, as adapted for cutting an almost endless variety of regular and irregular plain and fancy mouldings. To the machine in its present state, your Committee recommend a
Gold Medal.

264. Carey & Lawrence, *Lowell, Mass.* Machine for Wood Turning. A very substantial machine; particularly valuable when a large amount of work of the same kind, such as bed-posts and rails, is to be executed. For so well constructed and practical a machine, the Committee recommend a
Silver Medal.

917. James Stimpson, *Baldwinville, Mass.* Dowell Joint Machine. This machine, by a new and ingenious combination of parts, executes a very neat substitute for dovetailing for drawers and other articles of cabinet work.
Silver Medal.

262. Eben. S. Coffin, *Boston.* Window Sash Machine. A new method of attaching the cord to the sash. It may sometimes be found convenient.

222. S. F. Atherton, *Fitchburg, Mass.* Hoop and Rattan Splitter and Dressing Machine. There are some novel and valuable features in both

these machines; and by them passable Hoops for casks can be made from very inferior poles. *Silver Medal.*

1209. H. R. TAYLOR, *Roxbury, Mass.* Specimen of Patent Drawer and Money Drawer. Both on the same principle. A very ingenious invention, whereby the whole depth of the Drawer may be drawn out, without liability of hitching, sagging, or falling. *Silver Medal.*

423. H. B. SMITH, *Lowell, Mass.* Tenoning Machine, Power Mortising Machine, and Sash Moulding Machine. The Power Mortising Machine is of the first class, and has a new and valuable improvement for reversing the Chisel and in the adjustment of the material. *Bronze Medal.*

The Tenoning and Moulding Machines are very good machines, and particularly adapted to light work.

526. COTTERELL & BABCOCK, *Westerly, R. I.* Patent Rotary Wood Planer. A good machine for straightening up light work. *Diploma.*

375. GRAY & WOODS, *Boston.* Patent Saw Arbor. Patent Hanger Box for Shafting. Self-Oiling Loose Pulley. All these machines are on the same principle, which makes a very good bearing for journals of rapid motion. There are some improvements in them, but the main principle is not considered new. *Diploma.*

SEWING MACHINES.

The Sub-Committee, to whom was referred the Sewing Machines on exhibition, have to say, that they find many varieties, for each of which *great superiority* and *peculiar excellence* is claimed by the exhibitors. They are all so well adapted to the purposes for which they were designed, that it is a difficult task to discriminate, and give one the preference over the others. The march of improvement in this branch of mechanics seems to be unrivalled.

764. A. F. JOHNSON, *Boston.* Four Sewing Machines. These are deserving of much notice. There are two kinds exhibited by Mr. Johnson, of which he is the sole inventor; and he has a number of patents, covering his improvements. One of these machines is capable of making two kinds of stitches. It will make the single chain stitch, or a double-thread stitch, entirely new. (*Multum in parvo.*) The change from one stitch to another is simple, and the work of but a moment. It is well adapted to all the different kinds of Family Sewing. The other machine makes the Double Lock Stitch in a very superior manner. These machines are all of new patterns throughout. They are each mounted upon an elegant table, wholly original with Mr. Johnson. They are very simple in all their arrangements and perfectly effective, are very cheap, and very ornamental, and they are sold at an extremely low price, placing them within

the reach of most any family. Your Committee, taking into view the whole ground, believe that Mr. Johnson has produced a machine perfectly new; and for its beauty and effectiveness, as a cheap family machine, they deem it worthy of a *Gold Medal.*

276. New England Wax Thread Sewing Machine Co., by Wm. Butterfield, *Boston.* Wax Thread Sewing Machines. These machines, with their present improvements, come before the community, for the purpose for which they are designed, without a rival. They are all of the first class of workmanship,—the part that comes to wear being made of cast steel and hardened, which is essential for heavy work. They are capable of performing a great variety of work, from the closing of kid to the heaviest cowhide, with either waxed or dry thread. They will, by using a gauge and clamp, close boots of any pattern legs. They will also sew the heaviest or lightest harness, and stitch a tug more beautifully than any cordwainer can do it. By a very ingenious mode of operation, they lay the stitch on the inside of the tug below the surface, making it perfectly smooth, and not liable to wear off. They do their work quite rapidly for so heavy a machine, and will recommend themselves to the manufacturers. For their adaptation for the purposes for which they are designed, and their thorough workmanship, your Committee recommend a *Silver Medal.*

451. K. Vogel, *Chelsea, Mass.* Vogel's Button-Hole and Sewing Machine. This machine has a greater range of work than any other machine before the Committee. It works the button-hole and does all other kind of sewing very neatly, but does not work as rapidly as some other machines, which execute a smaller variety of work. It is so novel in all its movements, that the Committee will not try to explain its combination. It is perfectly new, and deserves a high commendation.

Silver Medal.

765. Chas S. Homer, *Boston,* for *Wilcox & Gibbs, New York.* Sewing Machine. This is claimed to be a new invention. It is a one-thread machine, and forms a patent twisted loop-stitch, flat or nearly so, on both sides of the work; it is capable of doing all the different kinds of family sewing; it is an easy and rapid operator, and the evenness and beauty of its work will commend it to general favor. The quality of the sewing is much stronger than would be expected from this kind of stitch, owing partly to the shortness and peculiar formation of the stitch, and partly to the tension. By a very neat arrangement in front of the balance wheel, below the table, the wheel is prevented from being turned backwards, guarding the machine against all accident from that cause. These contributors also had one of their machines running by power; and it astonished the

beholder to see the rapidity with which it would do its work, sewing a yard of very fine work in about twelve seconds, and in no case making a miss stitch. This machine caps the climax for a single-thread machine, and your Committee would recommend a *Silver Medal.*

556. Ladd, Webster, & Co., *Boston.* Sewing Machines. This is a Shuttle Machine, and was exhibited at the Eighth Exhibition by Hunt, Webster, & Co., and received a Silver Medal. Since that time, it has undergone a great change, and is essentially improved. There are some features in it perfectly new. By a very simple arrangement (the mere turning a cam or excentric, the handle to which is attached below the table) the feed is adapted for thick or thin work, from that on the finest muslin, to that on the coarsest cotton, and even to that on leather. There is also a very beautiful device for taking up the slack of the thread without the use of springs, so arranged as to be sure and positive in its operation; also, a set of cam pulleys attached to the driving wheel, by means of which the speed can be readily altered. It uses the straight needle. The workmanship is of the highest and most systematic order, every part in each machine being made exactly like the corresponding parts in all others, so that any part may be supplied, obviating in many cases the necessity of returning the machine itself for repairs. For the improvements since its last exhibition, a

Silver Medal.

579. Thaxter & Leonard, *Boston.* Four Parker's Sewing Machines. This machine is so constituted that it embraces the combinations of the various patents, owned and used by Elias Howe, Jr., Wheeler & Wilson, and Grover & Baker, for which these parties pay tribute. These, together with Parker's improvements, make it a beautiful machine. They are sold from $40 to $120 each. They are very perfect in their mechanism, being adjusted, before leaving the manufactory, in such a manner that they cannot get deranged. The feed, which is a very essential point in a good machine is simple, positive, and complete. The apparatus for gauging the length of stitch is very simple and effective. The tension, as well as all other parts, is well arranged. There is another feature which strikes your Committee favorably, viz: there is no wheel below the table between the standard to come in contact with the dress of the operator, and, therefore, no danger from oil and dirt. This machine makes the double lock stitch, but is so arranged that it lays the ridge upon the back quite flat and smooth, doing away in a great measure with the objection sometimes urged on that account.

Silver Medal.

655. Leavitt & Co., *Boston.* Four Sewing Machines. One of these is similar to that which was exhibited by Nichols, Leavitt & Co., in 1856,

for which they received a Silver Medal; but it has been very much improved since. There are two kinds: light machines for family use, and heavier for heavy work, such as closing and stitching shoes, carriage work, etc., for all which they are well adapted. They make the shuttle stitch, and are so arranged that the needle leaves the work before the stitch is drawn up, allowing it to make a tight stitch. They have also a very ingenious arrangement, doing away with the cams below the table, and substituting a crank movement in connection with the levers on the standard, easy of access. This, together with the feed, which is much improved, makes them desirable family machines. These machines, taken together, are deserving high encomiums; and for the great variety of work which they are capable of doing, and the new arrangement of their parts, especially those of the family machine, your Committee recommend a *Silver Medal.*

718. GRAY & GRACE, *Boston.* Three Sewing Machines. There are two classes of machines entered by this firm, one making the double lock stitch, and the other the shuttle stitch. They have some new features, are very simple and strong, not liable to get out of order, beautiful in their appearance, and well adapted for the domestic circle. *Silver Medal.*

683. L. A. BIGELOW, *Agent, Boston.* Harris's Patent Sewing Machine, better known as the Boudoir Machine. This machine combines the improvements of others, for which the parties pay license. It has been before the public for some time, and has an established reputation. It makes the double lock stitch. The quality of sewing is of the strongest and finest kind. It runs equally as well backwards as forwards, is very light, and makes very little noise. A gum elastic ring, which is brought in connection with the periphery of a balance wheel below, gives the motion, doing away with the use of a belt. This peculiar arrangement is so adapted that, in closing the box which covers the upper part, the machine is detached from the pulley below, and no injury can happen to the machine by the turning of the wheel. The treadle, also, is very peculiar. It has its centre of oscillation placed above, instead of below the foot, thus giving a swinging motion to the foot and making it much easier for the operator. This machine comes in the range of cheap family machines, and we think that it is a decided step towards diffusing the benefits of these invaluable instruments among a class most in need of them. For its combination of parts, its beauty and simplicity, together with its ease of operation, we recommend a *Silver Medal.*

856. J. P. BOWKER, Jr., *Boston,* for J. A. B. HOWE, *New York.* Howe's Sewing Machine. This machine has the shuttle movement, and is well adapted to a great variety of work, from the lightest to the heaviest, stitching leather, etc., all which it executes with great precision and accuracy. It has

a world-wide reputation, and probably takes the lead among the craft. It was exhibited and received a silver medal at the Exhibition in 1856.

811. FINKLE & LYON, *Boston.* Three Sewing Machines. These machines have the shuttle-stitch movement, but somewhat different from others. The shuttle is carried in a carriage, doing away with the necessity of oiling the shuttle, and keeping the thread clean and clear from oil. They run extremely light, and can be adapted to work of greater or less delicacy. The stitch is tightened very equally on both sides of the cloth, and the appearance of the seam is alike straight on both sides. They are well made, and reasonably free from liability to derangement and breakage.

Silver Medal.

857. S. C. HART, *Boston,* for MORSE & TRUE, *Norwich, Conn.* Sewing Machine. This machine makes the seam stitch as the rest of the shuttle machines, presenting on both sides the appearance of stitching. In its combination of parts, it differs somewhat from the others. It has a distinct arm, operated by a cam below the table, to take up the slack thread, very effective in all its movements and not liable to get out of order. It has a larger set of drawing pulleys than any other machine, which allow it to do its work with a slack belt. It is strong and well made, a good family machine, and is capable of doing hard work very rapidly.

Bronze Medal.

702. WILLIAMS & ORVIS, *Boston.* Three Sewing Machines. This machine in most respects resembles the Boudoir. The feed differs, inasmuch as it has an under feed and some new devices for holding the thread and the tension.

540. H. D. WALCOTT, *Boston.* Sewing Machine Nippers and Scissors combined. A very useful article in connection with a sewing machine.

360. COTTRELL & BABCOCK, *Westerly, R. I.,* by M. S. GREEN, *Agent.* Morton's Patent Loop Check for the Wheeler & Wilson Sewing Machine. This simple device is to take the place of the Leather Checks formerly used by this firm, which were objectionable. It consists of a fine flat hairbrush, so arranged as to be easily regulated and adjusted. A very ingenious piece of mechanism, and a great auxiliary to Wheeler & Wilson's Machines.

Bronze Medal.

857. S. E. BLAKE, & Co., *Worcester, Mass.* BLAKE & JOHNSON'S Hemmer for Sewing Machines. This is a beautifully made article, easily adjusted to any sewing machine; capable of hemming any width up to one and one half inches; and will accommodate itself to thick or thin work equally well. *Diploma.*

859. L. A. **Bigelow**, *Boston*. Automatic Gauge. This gauge is a very nice apparatus to attach to a sewing machine, for the purpose of gauging the hem or seam. It is well adapted for the purpose, easy of adjustment, and sure in its operation. *Diploma.*

HYDRAULIC MACHINES.

43. **American Water Wheel Co.**, *Boston*, A. **Warren**, *Agent*. A four feet Warren Turbine Water Wheel, a Working Model of the same, and a Globe Coupling.

From the first rude water wheel of the reacting class, invented or introduced in this vicinity, by Calvin Wing, now some thirty years ago, to the first-class turbines of the present day, the stride is enormous. Nearly all the intermediate grades are, however, still represented, there being a demand for a great variety as to cost, power, etc. The highest class are of great cost and delicacy, which limits very much the demand for them. The wheel here exhibited is a very good specimen of a class a little below the highest. It is a central discharge wheel, well made, and constructed with more regard to correct theoretical considerations than usual.

The Globe Coupling is a new invention for placing the step level of the wheel, without the necessity of having it at or near the top of the shaft. It is simple and ingenious, and apparently free from serious objection. The step is one of the most serious difficulties in reacting wheels, particularly in wheels of great power; it is usually placed below the wheel, where it is difficult to get at. Suspension from the top has hitherto been expensive. By the Globe Coupling the suspension is made at any point above the wheel.

A silver medal was awarded for the water wheel at the last Exhibition. For the Globe Coupling a *Silver Medal.*

87. **William D. Andrews & Bro.**, *New York*. Andrews's Patent Anti-Friction Centrifugal Pump.

It was stated to the Committee that this pump has the capacity to raise 4,500 gallons per minute, to a height dependent upon its velocity, to raise it sixty feet high requiring a velocity of five hundred and fourteen revolutions per minute. Centrifugal pumps are, however, most useful in raising great quantities of water to small heights. They have also the valuable qualities of great durability, and of allowing sand, small stones, and many other substances, to pass through them without injury. In many of the pumps in use, however, there is a great waste of power from the sudden changes of direction and velocity to which the water is subjected in passing through the pump. The improvements in this pump are intended to obviate this objection. The term *anti-friction* is undoubtedly intended to indicate this. The losses of power, however, arising from sudden changes of direction or velocity are quite different from friction.

The pump exhibited is driven by two oscillating steam cylinders attached to the casing, the whole apparatus being arranged in a very convenient and compact form for a wrecking pump. It will also be found equally effective for drainage purposes where the quantity of water to be raised is large and the lift not too great. *Silver Medal.*

134. ASA M. SWAIN, *Lowell, Mass.* Improved Water Wheel. Specimens of Gear planing for wooden patterns.

The improvement claimed in the water wheel is, the adjustable opening, by means of which the same form of opening is preserved at all heights of gate, the result claimed being that the loss experienced in other wheels, when using the gate partly open, is avoided. The gate with the disc or guide plate attached, closes by moving upwards, carrying the guides, which enter into corresponding slots in the upper disc plate. The patent is dated in May last, and no accurate experiments have yet been made to ascertain how far the expectations of the inventor are realized.

The specimen of gear planing for patterns is the result of *a pattern maker's tool,* invented for the purpose, but not exhibited. The work is, however, very good, and entitles the exhibitor to a *Diploma.*

138. SAMUEL B. LEACH, *New York.* Burnell's Patent Direct Acting Rotary Lift and Force Pump. This is a neat and convenient pump, perhaps as good as any of its class; but the Committee do not see that the liability to rapid wear, which is the great difficulty in rotary force pumps, is overcome.

177. PLYMOUTH MILLS, J. FARRIS, *Agent, Plymouth, Mass.* Duplex Turbine Water Wheel. It is a very serious objection to nearly all turbine water wheels, that when from insufficient supply of water or other cause the speed gate can be only partially opened, the power given by the wheel is diminished in a much greater proportion than the quantity of water used. In this wheel, which has a central discharge, this is partly overcome by means of diaphragms or partitions placed half way up the buckets, the novelty being that there is a partition in the scroll as well as in the wheel.

Bronze Medal.

212. D. A. TAYLOR, *Boston.* Two pairs ship's main Pumps. Three yard fountain pumps. Three fountain pumps, one ship's engine working air, one ship's engine working water, one fire engine, one ship's ventilator, three capstans, one model of a capstan, nine tops of ship's pumps, one common pump, one No. 1 fire engine, one double-acting pump, five pieces of hose with hose pipes, two four-inch copper bilge pumps, one common A. C. copper pump.

These articles are nearly all of a superior character, combining strength and simplicity, with convenience and good designs. The Ship's Pumps and

Fire Engine the Committee consider of great merit; not so much from any striking novelty, as for sound construction, and thorough adaptation to the requirements of a ship. For Edson's improved Fire Engine, a

Silver Medal.

269. Chas. H. Hersey, *South Boston.* Working model of a Rotary Pump. Patented July 26, 1859. This is a force pump of ingenious arrangement. *Bronze Medal.*

287. Chas. A. Stebbins, *Boston.* Oil Pump. An ingenious arrangement by means of which a definite quantity of oil can be injected into the cylinder of a Steam Engine. *Diploma.*

346. A. Sylvester & Co., *Boston.* Six-inch Stop Cock. A very simple and substantial article, well adapted to the requirements of City and Town water-works. The form is stronger than usual, there are few external joints to leak, and it can be furnished at less cost than the cocks or stop-gates in common use. *Silver Medal.*

422. C. R. Hill & Co., *Boston.* West's improved Pump. This is a double-acting lifting and forcing pump, of great simplicity, and adapted for deep wells, and also for numerous other purposes. It is remarkable as furnishing the essential features of a pump of a kind which is usually very complicated, with a small number of parts and at small expense.

Silver Medal.

457. George T. McLauthlin & Co., *Boston.* Patent Rider Water-Wheels. Water-Wheel Step Box. The water-wheels are fitted with Bucket pieces, by means of which the apertures can be diminished for the purpose of adapting the wheel to a short supply of water. The step box contains adjustments both vertically and horizontally, the merit being in the compactness and simplicity of the arrangement. A silver medal was awarded for the wheel at the last Exhibition. For the Step Box, a

Bronze Medal.

502. Waldo Whitney, *Manchester, N. H.* Whitney's improved Hazeltine Patent Combination Water-Wheel. The water is admitted from a scroll on the outside, and passes through the wheel, first horizontally, and then downwards and outwards. This is accomplished by means of a peculiarly twisted bucket. It is arranged in compact form, with iron scroll and gate ready for attachment to a flume.

731. John Hartshorn & Francis Gould, *Boston.* A Water filter. Any filtering medium may be used, the peculiarity is in the mode of cleansing from impurities, which can be done simply by turning some cocks. It is adapted to filtering under pressure, and the whole supply of a house can thus be filtered before its distribution. It is a recent invention,

and, of course, has not yet been extensively used. In the opinion of the Committee, it promises to meet a want, and merits a fair trial.

Bronze Medal.

841. W. T. Vose, *Newtonville, Mass.* Hydropult, or Portable Fire Annihilator. This is a hand engine, with suction and leading hose attached, and arranged in a very convenient and portable form. It is, in fact, a double acting lifting and forcing pump, arranged with two cylinders and pistons, with a valve in each piston, no other valve being required. The two pistons make strokes in the same direction, at the same time, but in the down-stroke, one piston is lifting and the other forcing; in the up-stroke, the action of each is reversed. The result is an extremely simple and effective hand engine, which will be found very useful for many purposes.

Bronze Medal.

915. J. E. Stanwood, *Boston.* Two Machines for Cutting Gas Pipes. This is rather a tool than a machine; and although patented only about eighteen months since, it has already become one of the indispensable tools of the gas-pipe fitter. With it he is able to cut off a pipe in less time, and to leave it in better condition for cutting the thread, than with any of the portable tools previously at his command. It is simply a rolling cutter, confined in a handle containing a hook and a follower, the cutter being fed up with a screw. *Silver Medal.*

932. Jas. M. Edney, *New York, by* J. W. R. Hill, *Agent, Boston.* American Pump, invented by John Powers. This is a double-acting Force Pump, intended to be placed below the water, as there is no suction. It is simple and cheap; and from being placed under water, will continue to operate efficiently when much worn, and in such bad order that an ordinary pump, out of water, would be useless. *Bronze Medal.*

954. Gerard Sickels, *Roxbury.* A Water Meter. Scarcely any minor article has been so industriously sought after, and with such ill success, as a good water meter. Accuracy, certainty of action, durability, and cheapness, have not yet been combined to a satisfactory extent. That they will be, however, is pretty certain. The want is too great to remain unsupplied. The Meter exhibited is a very well-made article, and, so far as the Committee could judge, operates well. The improvement claimed is in the valves, and apparatus for moving them. The whole arrangement is very simple, and of few parts. The four puppet valves are mounted on one rod, and are so arranged that the pressure of water upon them is very nearly balanced; and as they require to be moved a very small distance, the power required for the purpose is also very small. The measuring piston furnishes the moving power, which is communicated to the valve rod by a tumbler and

lever, requiring no stuffing-boxes, or tight fits. Whether this Meter will fulfil all the requirements, can only be determined by a more extensive use than it has yet had.

MISCELLANEOUS INVENTIONS.

308. NOBLE & BROOKS. Splitting Machine; Hand do.; Rolling Machine; Hand do.; Large Size Splitting Machine. This last is regulated on both ends from above. It is strongly built, and is a well known and useful article, and received a premium at a former exhibition. All the above machines are of good make, and the Committee recommend a *Diploma.*

309. C. H. HILL, *Billerica, Mass.* Knife-Grinding Machine. Grinding by an endless belt. The Committee recommend, for its novelty, *Bronze Medal.*

380. ISAAC B. RICH, *by* T. D. TAYLOR, *Agent, Boston.* Spindle Banding Machine. Very ingenious, and well calculated to perform its work. *Diploma.*

381. CANTON BOOT AND SHOE MACHINE CO., *Boston, by* J. A. SAFFORD, *Agent.* Rolling Mill, of great power and well finished. Splitting Machine. This has some improvement, and is well made. Stripping Machine, for leather, paper, and other materials. This has a regulating platform; is well made, and of good design. These three Machines we recommend to the public, and for them a *Bronze Medal.*

522. JOSEPH MILLER, *Boston.* A Model of a Street-sweeping Machine, in which your Committee do not find anything new.

588. JOHN P. HALEY, *Boston.* Splitting Machine for hand work. Strongly constructed.

589. CRAIGIN, PAGE, & CO., *Boston.* Rolling Mill for common use. Simple, but of good plan. *Diploma.*

610. BROOKS & MECUEN, *Boston.* Knuckle-Joint Rolling Mill. An *old* contrivance for the regulation of rollers, but well constructed.

Leather Rolling Mill and Balance Wheel. Well made, and useful.

High Frame Splitting Machine. Nothing new, but decidedly well made.

Crimping Machine. Good, substantial article, of metallic construction.

Patent Treeing Machine. Not so good as some others exhibited, but worthy a *Bronze Medal.*

791. ELISHA FRENCH, *Braintree, Mass.* Apparatus for Rescuing Horses from Fire. A well-made article, but one requiring long preparation to enable it to fulfil its design.

869. R. E. JOHNSON, *Boston.* Bell Ropes to go upon Rowe's Annun-

ciator. The improvement consists in the ornamentation and elasticity of the ropes. *Bronze Medal.*

769. C. N. Hair & Co., *Worcester, Mass.* Belt-Fastening Hook. Made by a punch, which rounds and swells the end to prevent the cutting of the belt. A new article. *Bronze Medal.*

919. B. F. Sturtevant & Co., *Boston.* Machine for making Shoe-peg Wood. A very superior machine, which cuts off strips of peg-wood from a log, the log being made to revolve on its centre. *Silver Medal.*

62. A. A. Pope, *Boston.* Skiving Machine. A well-made article, but one of a kind in common use.

394. J. B. Wentworth, *Lynn, Mass.* Patent Curriers' Knife. The patent is for the Handle Holders, which control the Knife. *Diploma.*

342. J. C. Hobbs & Son, *Boston.* Knife for Curriers' Splitting Machine. A very good piece of workmanship.

609. John D. Young, *Boston.* Splitting Machine, of kind in ordinary use. Well made.

295. J. M. Read, *Boston.* Patent Boot Crimps. The patent is for "a double screw clamp." A good article; very simple and effective. *Bronze Medal.*

789. William P. Moses, *Exeter, N. H.* Improved Currying Knife. This knife has a guide to regulate its shaving. A great improvement. *Bronze Medal.*

575. S. A. Heath, & Co., *Boston.* Cole's Vascillating Gate. A very neat Gate; simple in action, and ornamentation. Your Committee have doubts whether it will work in the winter. *Diploma.*

206. E. D. & G. Draper, *Hopedale, Milford, Mass.* A Case containing Temples and Oilers; and Stearns's Patent Shuttle. These articles are in general use among manufacturers. The Shuttle being inclosed, and there being no one present to explain its peculiarities, the Committee cannot decide upon its merits. They understand that it is approved by those who have used it.

104. William F. Edson, *Philadelphia.* Heel-Turning Machine. This is a very useful application of the rotary cutting wheel and guide. To dress a shoe or boot-heel in handsome style, and cut a handsome and true curve, by knife in hand, requires much time; but by the operation of this machine, a perfect heel is formed, giving it any curve required, in less than ten seconds, making a more perfect finish than a man could make in half an hour. The heel-lifts are first fastened on to the boot or shoe while on the

last, and then applied to the machine which removes the superfluous leather by the rapid revolution of a cutting wheel, in the time above stated.

Silver Medal.

860. Philander Shaw, *Boston*. Heel-Cutting Machine. This is another method of dressing the shoe heel. The heel-lifts are formed into a block or heel by gluing or otherwise, and pressed together; this fits them for the operation of dressing; they are then taken by the operator and placed between two jaws like a vise, and held fast. There are two curved knives or cutters, one on each side of the heel, and by the force of a foot-treadle, these knives are driven down, throwing off the superfluous leather, and the work is done, — leaving the heel to be fastened on to the shoe after it is trimmed or dressed. But your Committee are of the opinion that this method of dressing the shoe-heel is not so perfect as No. 104, which turns the heel after it is fastened on to the shoe. *Bronze Medal.*

105. Othenile Gilmore, *Raynham, Mass.* Counter Skiver, and Welt Splitter. The Counter Skiver is a neat, well-built machine, and operates by power; it cuts off the edges of the boot and shoe counter, an operation formerly performed by hand with the shoe knife. It is done more perfectly and much more rapidly, with this machine, than by hand.

Bronze Medal.

The Welt Splitter operates by power, and splits welts for boots and shoes with great rapidity and perfection. *Bronze Medal.*

103. E. T. Ingalls, *Haverhill, Mass.* Edge Finishing or Burnishing Machine. A good labor-saving machine. This machine does that part of the finishing of the edge of the sole which was formerly done by a hand-tool. The tool is put in rapid motion by a crank, and the shoe is borne round against it, giving it a more perfect finish than by hand.

Bronze Medal.

530. Canton Boot and Shoe Machine Co. J. A. Safford, Agent, *Boston*. Under this number, a variety of machines from various parties were entered, viz:

Sole-Cutting Machine. This cuts the leather into strips, wide enough for the sole, but does not cut it in perfect shape; the soles have to be finished afterwards.

Shoe Trees. This is an instrument for finishing shoes on. It presses them into form while they are being rubbed down. *Diploma.*

Upper Leather Skiving Machine. A good machine, in which the leather is guided by a roll. *Diploma.*

Welt Splitter. A neat little hand machine for splitting the welts. It does its work better and quicker than it can be done by hand.

Diploma.

Sole-Former Press. This is a common press, in which is placed a cast-iron mould; the soles are pressed into the mould and kept there till they are set into shape. *Diploma.*

Boot-Counter Skiving Machine for S. A. W. PARKER. This is operated by a treadle moved by the foot, and is used instead of a knife in the hand. *Bronze Medal.*

Boot Tree, for RICHARDSON & MAWINEY, an instrument for finishing boots on; instead of driving pegs, according to the old method, the treeing is done by a lever operated by the foot, while the finishing is applied. *Bronze Medal.*

Pegging Machine for P. BELKNAP, Jr., *Northfield, Vt.* This is the third pegging machine in the Exhibition. It does not work quite as fast as No. 404. It makes good work and a great deal of noise. It drives the peg with a spring, instead of with a cam like the other machines, giving a quick blow like a hammer. *Silver Medal.*

Double Die, Right and Left Sole-Cutting Machine for WALTER D. RICHARDS. This is an important invention. The machine goes by power. The leather is fed by hand, and cut by dies in perfect shape, ready for the shoe without alteration. The dies cut *one sole*, turn over automatically and cut *another*, bringing the toe on the other side of the leather, preventing by this means the loss or waste of leather. *Silver Medal.*

106. B. F. STURTEVANT, by E. ARNOLD, *Agent*, *Boston.* Sturtevant Pegging Machine. This a valuable labor-saving machine. It punches the hole, saws off the peg from a strip of peg wood, drives it into its place, and pegs the shoe complete, driving 130 pegs in ten seconds or a sixth part of a minute. It is perfect in its operation, and simple in its construction, and makes as good work as can be done by hand. *Gold Medal.*

404. TRIPP & HILLS, *Stoneham, Mass.* Pegging Machine. This is another machine for pegging shoes which makes very good work, but does not operate one half as quick as No. 106, and is more complicated in its construction, but has one feature that is not in the other machines. It can cut the pegs off short, and drive them where short pegs are required, during the operation of the machine. Of how much consequence this is, the Committee are unable to determine. *Silver Medal.*

573. SAMUEL KEEN, *East Bridgewater, Mass.* Counter-Skiving Machine. This is a valuable machine for skiving. The leather is placed by hand on a rotating wheel, with a rough surface, which, by the operation of the foot and a treadle, carries the leather under a stationary knife, cutting it to any bevel required. *Bronze Medal.*

2003. G. L. Bailey, *Portland, Me.* Shoe Punch. A common leather punch operated with a treadle.

51. William Miller, *Boston.* Heel and Sole Cutting Machine. This is a foot power, toggle-joint heel and sole-cutting machine, which cuts leather in proper shape for heel-lifts. *Bronze Medal.*

286. George H. Fox & Co., *Boston.* Flanders's Patent Machine for Splitting Leather. This machine is worthy of more than a passing notice. In this old State of Massachusetts, where there is more capital employed in the leather and shoe trade, than in any other branch of business, any important improvement in its manufacture, like splitting one side of leather into two or three sides, is no small saving in that costly article. Some forty years ago, a machine was invented that would split off from the butt side of leather, a narrow strip, and from time to time it has been improved so that it would split off a strip nearly two thirds the width of a thick side of leather. This machine would only operate on the thickest sides of leather, leaving most of the work to be done by the tedious and slow hand operation of the currier's knife, and causing an enormous waste of leather. But this new machine is built on an entirely different principle, and operates with such ease and perfection, that it splits a sheep-skin into three pieces, and the time has now come when the currier's knife will go out of use so far as shaving to a thickness, a side of leather.

Gold Medal.

7. Ammi White, *Boston.* Self-sustaining and Suspension Bridge. This structure is a good specimen of trussing and bracing for a foot-bridge.

353. E. Osgood, *Boston.* Cotton-Gin. The improvements consist mainly in two endless belts passing around two driving rollers; thence around two sharp-edged guides, coming in near contact to each other, borne together by a spring or weight. The Bite of the smaller rollers, as they revolve, takes hold of the cotton, as it is fed up to them, by the common feeding apron. On the outside of these biting rollers are two combs, one to each roller; their teeth near and pointing to each other. As the cotton containing the seeds is presented by the apron to the bite of the small rollers, it is drawn in, bringing the seeds up to the biting rollers. The combs before mentioned, having a rapid vibrating motion, separates the seeds from the cotton, the fibre passing through the rollers into the receiving-chamber. The above processes constitute the ginning of long-staple or Sea-Island cotton.

To gin short-staple cotton in this machine, a revolving brush is applied to clearing the staple of all remaining dust, and to blow it into the receiving-chamber.

Your Committee understand from the Inventor, that this is the first working model which has been introduced for ginning cotton, on this principle. They are in possession of no further facts, by which to form an opinion of its comparative merits. But in consideration of the fact that it evinces much thought in the right direction, they recommend a *Bronze Medal.*

511. Hooton & Bicknell, *Cambridgeport, Mass.* Lifting Jack, Clothes-Wringer, Cheese and Lard Press, combined. This is clearly a Yankee invention,—"*multum in parvo;*" and is really useful, and effectual for the purposes claimed by the inventor. The Jack can be detached and used for raising the carriage to grease the wheels; and then returned to its place to press the cheese or lard, and to wring the clothes. It is operated by a lever, cog, and ratchet, with the auxiliary aid of the toggle-joint. The whole machine is not much larger than an old-fashioned churn of ordinary size; and yet has a lifting or compressing power on the driving piston equal to fifteen hundred pounds, (1,500 lbs.) We recommend to the ingenious inventor, a *Bronze Medal.*

689. Joel Moulton & F. Lyford, *Boston.* Union Extension Ladder, Hose Elevator, and Fire Escape, combined. This ladder is composed of three sections, and so constructed that, by means of a windlass and ropes, or chains, it can be extended to any desirable point of the burning building, to carry up a hose, or to rescue persons from the flames. The whole group of ladders is combined in one folded cluster, and mounted on wheels. It is light and portable, and yet strong and firm, and can be taken to the place of danger with ease and despatch; and there be elevated or extended to the point required within two or three minutes of time, by sliding up the movable sections. It combines another advantage over the common ladder, for sending up a hose to a window, to throw in water horizontally, when, by reason of the flames, that point cannot be approached by other means. In that case the ladder is elevated independently of the burning building, and the hose sent up by the operator, who stands at the foot of the ladder.

On the whole, your Committee, by witnessing repeated exhibitions of its capabilities, are impressed with a conviction of its great practical value for the purposes contemplated by the inventor. *Silver Medal.*

708. Jacob Edson, *Boston.* Model of Street-Sweeping Machine. This is a working model of superior workmanship, and is the representative of a machine for sweeping the streets, by the application of revolving brushes attached to the arms, extending from an axle in the spiral form of a three or five-threaded screw, when the brushes are in their place. It is operated by horse-power, and motion is given to the brushes, by a cog-wheel, on the wheel of the carriage on which it is mounted, meshing with a pinion.

Each arm of the Spiral Sweeper has an elbow-joint, to allow the brushes to conform to the varied surfaces of the streets. The position of the Sweeping Wheel is diagonal to the line of the street. The dirt is thrown to the curbstone, and there is a curtain along the right side at the base of the machine, to keep the dirt from the sidewalks.

Your Committee witnessed the working of this machine by horse-power in the streets. It performed its work well, and appeared to possess the elements of a valuable labor-saving machine for sweeping the streets.

Silver Medal.

428. Benjamin T. & Gilman Currier, *Boston.* Cotton-Plant Cutter and Model. This machine is intended to clear the field of stalks and roots, after the cotton has been gathered. The machine is mounted on wheels, and operated by horses or mules. On the outside of each wheel is a large driving wheel, meshing in a pinion, whence motion is given to two iron shafts in nearly an upright position, attached to each of which are four knives which revolve with great rapidity, and as the machine is drawn along so as to bring the row of stalks between the cutter-knives, they are cut into short pieces, and scattered on the ground. At the bottom of the frame, to which the movements are attached in part, and near the ground, are two wheels, which revolve inwards. On the periphery of each, being in near proximity to each other, are cams, or teeth. When the machine is in full operation, these two revolving wheels seize the stump left by the cutters, and pull it up, and throw it upon the ground.

Your Committee look with favor upon this invention, and consider it a valuable auxiliary to the Cotton Planter. *Silver Medal.*

554. Alanson Crane, *Lowell, Mass.* Grooved-Cylinder Cotton, and Wool-Cleaning Machine. This machine is one of the many inventions of the day; the advantages of which are too well known and appreciated by the Cotton and Wool manufacturers to require a special notice of its merits by your Committee. *Bronze Medal.*

BUILDING MATERIALS AND HARDWARE.

William G. Brooks,
L. Miles Standish,
Samuel Neal,
John D. Towle,
Judges.

1. John P. Nichols, *Boston.* One Copper Cesspool. A good article, and of a new pattern. *Diploma.*

46. Charles Rhodes, *for* Volkmar & Co., *N. Y.* Patent Flooring. A good article, made of wood inlaid, and ornamental, for libraries, &c.

Diploma.

53. Wm. A. Clark, *Conn.* Patent Expansion Auger Bit. An excellent article and well made. *Diploma.*

228. Albert Field & Sons, *Taunton.* Card of Tacks and Brads. Diploma last year.

242. James F. Woodward, *South Reading.* Case of Awl Blades for Sewing Machines and Shoemakers' use. Very fine exhibition. *Bronze Medal.*

1295. L. D. Davenport, *Roxbury.* Specimens of Fret Sawing. Very fine specimens. *Diploma.*

254. Edmands & Co., *Charlestown, Mass.* Stone Drain and Water Pipe. A good article. *Diploma.*

1624. D. H. Shirley, *Boston.* Ladies' Skates. Excellent arrangement for fastening. *Diploma.*

1105. C. C. Fiske, *Charlestown.* Specimen of Carving. Very good. *Diploma.*

1157. Alfred Nye, *Boston.* Specimen of Wood Carving. Very good. *Diploma.*

215. Geo. & A. J. Perry, *Boston.* King's Patent Iron Fence-Post and Gate. *Diploma.*

557. O. J. Faxon & Co., *Boston.* Specimen of Machine Carving. Bronze Medal last year.

558. A. J. Wilkinson & Co., *Boston, for* Wm. T. Nicholson, *Providence, R. I.* Vises, Levels, Egg Beater, &c. *Diploma.*

570. Burden & Co., *by* Leeds & Tobey, *Agents, Boston.* Machine-made Horse and Mule Shoes. An article much used and highly recommended. *Diploma.*

692. Leonard Bailey, *Boston.* Case Mechanics' Tools. Well made. *Diploma.*

751. Henry F. Glover, *Dedham.* Case Moulders' Tools. Good.

91. Joseph Watts, *Boston.* Card Rules, and other Measuring Instruments. Well made.

95. E. L. Wait, *Boston.* Elastic Cement. A good article, highly recommended. *Diploma.*

809. Joseph F. Paul, *Boston.* Specimen of Carpenter Work and Mouldings. Superior workmanship. *Diploma.*

872. New England Roofing Co., *Boston.* Sample of Warren's Improved Fire and Water Proof Cement Roof. An excellent article, for which a Bronze Medal was awarded at the last Exhibition.

920. NORTHFIELD SLATE Co., *Northfield, Vt.* Roofing Slate. Good specimen.

72. SIMEON BROOKS, *Chester, Conn. by* PRINCE & Co., *Agents, Boston.* Case Wire Goods. Good articles and well made. *Diploma.*

89. THOMAS R. SHED, *Billerica.* Improved Winding Instrument. *Diploma.*

124. BYRON BURNHAM, *Boston.* One Case of Skates. Very beautiful and well made. *Diploma.*

126. GEORGE UPTON, *by* C. H. FROST, *Boston.* One Box Liquid Glue. A popular, useful, and good article. *Diploma.*

163. CHAS. H. CLARKE, *Boston.* Specimens of Fancy Stencils and Letter-cutting. Excellent. *Bronze Medal.*

179. PENRHYN MARBLE Co., JOSEPH STORY, *Agent, Boston.* Specimens of Chimney Pieces. This Company still maintains its high reputation and exhibits beautiful specimens. They received a Silver Medal at a former Exhibition.

201. STEPHEN ROE, *Chelsea, Mass.* Daylight Reflectors. A very useful article. *Diploma.*

354. JOEL ROBINSON AND EDWARD KERSHAW, *Boston.* Prison Door Fastenings. This arrangement is considered a great improvement over all others in use. It is to be used at the Prison at East Cambridge. *Silver Medal.*

372. W. T. WHEELER & Co., *Boston.* Model of Pilgrim's Patent for laying Water and Drain Pipes. *Diploma.*

392. CLINTON WIRE CLOTH Co., *Clinton, Mass.* Samples of Wire Cloth. This article has been submitted to your Committee as an entire new article, from the fact of its being woven on a power-loom instead of by hand. This loom was invented by Mr. Bigelow, of the Clinton Works, and is represented as the only one for this purpose in the world; it is estimated that by this mode of manufacturing, the price of the article can be lessened from 30 to 50 per cent., while the article itself will be better made; the specimens exhibited were excellent, and for the improvement in the mode of manufacturing they award a *Silver Medal.*

395. PAGE & ROBBINS, *Boston.* Samples of Window Glass and Shades. For the excellence of these samples, and the perfection to which this house has brought the manufacture of what is called the Berkshire Glass, *Silver Medal.*

397. WM. C. FISHER, *Boston.* Patent Store-Shutter Bolt. A great improvement on a small, but very useful and much used article. *Diploma.*

412. Wm. F. Falls, *Boston.* One pair of Skates. Very good.

414. Wm. F. Hall, *Brookline.* Padlock. Creditable as made by an apprentice. *Diploma.*

424. Jones & Brownbill, *Boston.* Ground and Cut Plate Glass. Very good specimens.

438. Parsons & Gibby, *Boston.* Case Stamps. Metal stamps of various devices for stamping dry goods. Very creditable. *Diploma.*

442. H. H. Packer, *Boston.* Ratchet Drills. Excellent specimen of a useful article. *Diploma.*

460. Aaron Birkenshaw, *Pepperell, Mass.* One Case Cutlery, Pen and Pocket Knives. Very handsome. *Bronze Medal.*

468. Granville Perry and Wm. Robinson, *Boston.* Zinc Sashes. A good article and preferable to lead. *Diploma.*

473. Thomas Flaherty, *Boston.* Specimen Rosewood on Black Walnut.

518. Bangor Piscataquis Co., *by* D. Tillson & Son, *Boston.* Specimen of Blackboard, and Roofing Slate. Very excellent specimens; the Blackboard Slate very superior. *Diploma.*

538. John A. Robertson, *Boston.* Machine Mouldings. *Diploma.*

565. Cushing & Mack, *Lowell.* Galvanized Sheet Iron Curved and straight Cornice, and House Trimmings. *Diploma.*

603. Curtis & McNutt, *Boston.* Wood Mouldings and Fret Sawings. Excellent work. *Diploma.*

605. D. J. H. Perry, *Rehoboth.* Wood Turning. Good.

611. Wm. Hall & Co., *Boston.* Stand Glass Door Knobs. Very handsome. *Diploma.*

630. Henry Coffin, *Boston.* Specimen of Carving. Excellent. *Diploma.*

653. John Mulliken, *Boston.* Case of Try-Squares. Very fine. Received a Silver Medal at last Exhibition.

660. Enoch Robinson & Co., *Boston.* Stand of Glass Door Knobs. *Diploma.*

749. Enos B. & Chas. W. Phillips, *Cambridgeport, Mass.* One case Skates. Very beautiful and well made. *Diploma.*

759. H. McCully, *Boston.* Specimens of Carving. *Diploma.*

1086. T. N. Brown, *Boston.* One Case of Skates. Specimens of Bronzed Iron Work. For the iron work, *Diploma.*

828. HOLDEN & NICHOLS, *Woburn, Mass.* Burglar's Annunciator or Night Watch Alarm. Very ingenious. *Diploma.*

849. BRADFORD STETSON, *Uxbridge, Mass.* Skates. With a new and ingenious method of fastening to the foot. *Diploma.*

909. ABEL HOWE & Co., *Marlboro', Mass.* Patent Breast Lanterns. A good article for watchmen, conductors, &c. - *Diploma.*

952. CHICKERING & SONS, *Boston.* Piano-Forte Hardware, for which a Bronze Medal was awarded at the last Exhibition.

960. JOSHUA TURNER, *Cambridge, Mass.* Plane-Iron Sharpener and Grinder, and a new pattern Glue Pot. *Diploma.*

962. DAVID P. FOSTER, *Florence, Mass.*, by NATH. ADAMS, *Boston.* Unyielding Grip Wrench for round nuts, gas pipes, &c. A good article. *Diploma.*

972. J. B. WINSLOW, *Boston.* Specimens of Moulding. Excellent samples. *Diploma.*

981. DISTON & MORSE, *Philadelphia,* by WM. H. CUTLER. Combination Hand-Saw. Ingenious and generally useful. *Diploma.*

979. B. F. COPELAND, *Boston.* Specimen of Roofing Slate, Vermont Slates. Very good, and has received favorable notices at former Exhibitions.

47. WM. H. MAINE & Co., *Boston.* Several specimens of Soap Stone Work. The Committee will indorse the report of the last Exhibition, at which a silver medal was awarded, by saying they consider them the best pieces of work in this material they have ever seen, and reflecting great credit on the contributors.

STOVES, FURNACES, RANGES, AND GAS-FIXTURES, BURNERS, &c.

EDWARD C. CABOT, JAMES PERKINS,
DANIEL DAVIES, *Judges.*

Your Committee have examined with all the care possible, in the time at their disposal, the articles submitted to them for judgment, and have collected information derived from practical experience and the evidence of inventors. They are aware that it is impossible, without extended experiments, to do full justice to each claim for invention or improvement, many of which consist in slight modifications of forms in common use.

They have been careful, in forming their judgment, to distinguish between improvements and complications, and have laid down the following as facts. That a good heater or cooking apparatus should provide for complete consumption of fuel, as far as possible, and apply the heat produced in the most direct manner for the accomplishment of the object aimed at, together with convenience of management. That the mode of connecting the apparatus should be the best, and the proportions of the parts such as not to conflict with permanent joinings. That the material should be durable, and the workmanship excellent.

In the department of furnaces, there are several very excellent ones; that which calls for especial notice is No. 854, McGregor's, exhibited by **Jones, Carpenter, & Co.**, *Boston.* It possesses a peculiar arrangement of draught, by which the results of combustion escape *only* at the bottom of the heating-chamber, which surrounds the fire-pot, and separates it from direct contact with the air to be warmed. In form and construction it is very simple, and the joints, by means of broad bearings, and the use of a durable cement, are rendered very secure; while the proportion in the masses of the castings are so nearly equal in weight and form, that the expansion and contraction takes place without exerting much stress upon the joints.

Silver Medal.

933. **Bryent & Co.**, *Boston.* Hot-air Furnace having a very large amount of heating surface, well-proportioned castings, and of admirable workmanship. *Silver Medal.*

Also — A Portable Furnace, Range, Ventilators, Chimney Caps, Parlor Grates, and Ash Sifters, all of admirable patterns and workmanship.

712. **Edward Whiteley**, *Boston.* A Patent Steam and Hot-air Furnace. An admirable arrangement of pipes attached to the boiler, by which the heating surface and circulating power is increased. The boiler is encased so as to heat air in contact with it, and convey it by an open register to adjoining rooms. The steam is conveyed in pipes or radiators of the usual form, placed in the apartments to be heated. *Bronze Medal.*

618. **Magee & Co.**, *Lawrence, Mass.* A Portable Furnace, Parlor Stoves. A Patent Regulator for draught. *Diploma.*

389. **C. F. Baxter**, *Boston.* A Steam Hot-air Furnace. In this furnace, steam is generated by the fire-pot, which has double walls of corrugated iron, forming a boiler, from which it passes into banks of pipes placed in the hot-air chamber; the amount of radiating surface being according to the size of the boiler and the number of banks of pipes used. Cold air is introduced, and being warmed by contact with the pot and pipes, is distributed in the same way as in ordinary hot-air Furnaces.

STOVES AND RANGES.

The Committee found a great many very ingenious stoves, and have been at a loss where to bestow especial praise, as all have claims to excellence;

that invented by D. G. Littlefield, of Albany, No. 876, called the Railway Coal-Burner, and exhibited by H. H. Stimpson, *Boston*, however, calls for especial mention. It has a new arrangement by which the combustion is caused to take place, at the circumference of the fire-pot, the centre being occupied by a cylinder containing coal, which is renewed as it is consumed below without putting out the fire. Air is admitted by an ingenious arrangement to assist combustion, without diminishing the radiating surface. The heat is caused to pass between the inner and the outer cylinders forming the upper part, which, with the fire-pot, gives a large radiating surface. The fire-pot is surrounded by an ornamental grill. Its popularity is, perhaps, its best recommendation. *Silver Medal.*

98. Barstow Stove Company, *Providence, R. I.* Three Cooking Stoves. A Parlor Stove and a Range. Castings of superior workmanship. *Diploma.*

454. B. W. Dunklee & Co., *Boston.* An Elevated Double Oven Range. An ingenious apparatus for frying and broiling, with down draught. For each a *Diploma.*

Two Parlor Stoves and a Portable Range.

456. Rathbone & Co., *Albany, N. Y.*, by B. W. Duncklee & Co., *Agents.* A Cooking Stove called the "Good Samaritan," having a superior arrangement for roasting. *Diploma.*

512. Moses Pond & Co., *Boston.* This well-known house exhibited an Improved Range, which contains many excellent qualities. *Diploma.*

Also — Parlor Stoves, and an excellent Parlor Grate.

Also — For Ransom & Co., *Albany, N. Y.*, a Cooking Stove called the "Peacemaker," having an interior roaster, central fire-pot, and an enamelled oven. *Diploma.*

521. Pond & Duncklee, *Boston.* A Cooking Range, Stoves, and a Furnace. *Diploma.*

670. George W. Walker, *Boston.* A Parlor Cooking Stove. *Diploma.*

Also — Stewart's Cooking Stove, a well-known pattern.

709. Thomas A. Westcott, *Boston.* A Cooking Stove with revolving Plate, called the "Statesman." *Diploma.*

778. Boston and Maine Foundry, *South Reading, Mass.* Parlor and Cooking Stoves, with a screw adjustment to regulate the draught. *Diploma.*

793. Bramhall, Hedge, & Co., *New York*, by L. Herman, *Boston.* Harrison's European Range. Very heavy and substantial, good workmanship and beautifully finished. *Bronze Medal.*

812. Middleby & Fillebown, *Boston.* Cooking and Parlor Stoves. *Diploma.*

844. Chas. H. Spence, *Boston.* Ranges and Furnaces. *Diploma.*

846. Hanson & Hale, *Boston.* Cooking Stoves, Parlor Stoves, and Portable Furnace, called the "Challenge Heater." *Diploma.*

938. Seavey & Co., *Boston.* Parlor Stoves, with bottom draught, and an improved fire-pot and regulator. *Bronze Medal.*

958. Rice & Brother, *Boston.* Portable Range and a Cooking Stove. *Diploma.*

The next article to which we should especially call attention is No. 877. Self-generating Gas Stove and a Gas-cooking Cabinet, by Wm. P. Marshall & Co., *Boston.* An apparatus for cooking, by means of a simple self-generating gas lamp; it consists of a cylinder with an opening at the top, having a tight screw stopper as a filler; two stout copper wires placed at the top within the cylinder, and projecting an inch or two outside of it, a copper pipe passing out from the cylinder, near the top, and down the side to the bottom, thence projecting at right angles from it, directly under the wires. The end of this pipe is closed, and has small perforations made on top near the end. The cylinder is partly filled with alcohol, the copper wires are then placed in a flame, and communicate heat to the interior of the cylinder, producing a flammable gas, which escapes by means of the perforations in the pipe, where it is ignited; and involving the copper wires in the flame, continues the supply of heat to the interior. It is applied to cooking utensils by means of the various contrivances in common use for diffusing the heat. *Bronze Medal.*

Another article deserving especial mention is No. 762, a Self-Generating Safety Gas Lamp, exhibited by Dr. C. A. Green & Co., *Boston,* in which, by a very simple arrangement, the heat of the flame is prevented from penetrating the reservoir of the lamp; and also, by which the flame is immediately put out by a blow, or by tipping the lamp on one side, so that before the fluid, (which is that in common use,) can be thrown out of the lamp, it is extinguished, thus diminishing the danger from the use of the common burning fluid. *Bronze Medal.*

372. W. T. Wheeler & Co., *Boston.* Johnson's Portable Gas Apparatus. In this apparatus, the flame is produced by the conversion of burning fluid into gas by means of a retort (heated by the flame itself), to which the fluid is conducted through a pipe from a reservoir placed above and away from the heat of the flame and from which the gas passes, through

another pipe to the burner, the whole apparatus (it is claimed) being so arranged as to preclude the possibility of an explosion or accident from its use. It produces a powerful light, and is entirely odorless.

Bronze Medal.

We would next notice particularly No. 994. E. F. Orne, *Boston.* A Gas Burner, where common sawdust is used as a packing for the purpose of separating impurities, and giving a steady light, it appears to work with entire success. *Bronze Medal.*

The last article which we would notice here is No. 2006. A Steam Condensing Boiler, exhibited by G. S. G. Spence, *Salem, Mass.* It consists of a boiler, into which a cylinder closed at one end is placed, covering anything to be boiled, and separating it from the outer boiler by means of water-joint at the bottom. Above the inner cylinder, and forming part of it, is a reservoir for cold water, which acts as a condenser to the steam arising from the boiling substances, returning the odorous bodies to the boiler. The same apparatus, with a slight modification, is used to condense fresh-water from salt. *Silver Medal.*

690. T. E. Chubbuck & Son, *Roxbury, Mass.* Two Steam Radiators of good pattern.

495. N. W. Turner, *Boston,* for Cornelius & Baker, *Philadelphia.* Four beautiful Bronze Figures. *Silver Medal.*

735. S. A. Stetson & Co., for Mitchell, Vance, & Co., *New York.* Gas Fixtures of beautiful design and superior finish.

Silver Medal.

221. Henry N. Hooper & Co., *Boston.* Gas Fixtures of superior finish and good design. *Bronze Medal.*

774. Whitney, Brothers, *Charlestown,* for Wm. Carleton, *Boston.* Gas Fixtures. *Diploma.*

893. Appleton & Graham, *Boston.* Water Gas Apparatus. This is an apparatus for producing gas from water at a cheap rate. The apparatus was imperfect, and for want of opportunity for full investigation, the Committee were unable to make a full report, but found the gas produced of excellent quality, and giving an agreeable and strong light.

911. Francis Dixon & Co., *Lynn, Mass.* Specimens of Stove Polish.
Diploma.

IRON, BRASS, AND COPPER CASTINGS.

Ammi Smith, E. B. Vannevar,
Oliver Ayres, *Judges.*

98. **Barstow Stove Co.**, *Providence, R. I.* One Burial Casket. A beautiful specimen of casting. *Diploma.*

187. **J. L. Roberts**, *Boston.* Cemetery Fence. Neat design, and good casting.

378. **Samuel Sweet**, *Boston.* Ornamental Iron Railing, &c. Good casting, and some good designs; but nothing that can be called new.

484. **East Boston Iron Co.**, *East Boston, Mass.* Cast-Iron Pilaster and Arch. Cast-iron, as a building material, is rapidly taking the place of stone, in positions where economy of light and space is necessary. The above is a fine specimen of casting in this line; and the Committee consider it worthy the award of a *Bronze Medal.*

617. **Herman Strater & Son**, *Boston.* Copper Tea-kettle. A specimen of copper-work, which, by a casual observer, might be passed unnoticed; but which is, in reality, a most ingenious specimen of skilful workmanship by a young mechanic. The body and nose of this kettle are formed from one flat piece of copper; an undertaking which, although in this particular instance not productive of any intrinsic value, is still worthy of favorable notice, as proving a skill in his craft on the part of our young friend, which might be found "hard to beat," by many of his older competitors. The Committee recommend the award of a

Bronze Medal.

726. **Hicks & Badger**, *Boston.* Specimens of Copper Work. A lot of planished copper work, very neatly done.

Also — A Lighthouse Ventilator, a superior specimen of workmanship, and particularly worthy of notice, in the opinion of the Committee, as not having been made for exhibition, but a fair specimen of what may be expected from these gentlemen in actual service. The Committee recommend the award of a *Silver Medal.*

870. **Henry N. Hooper & Co.**, *Boston.* Bells. Perhaps the strongest language the Committee can use in this case, is to say, that Messrs. Hooper & Co. have fully sustained their previous reputation. We are called upon to judge of their products, simply as castings, and would say, that while all the samples submitted by them are excellent, we were particularly struck with the faultless appearance of a monster bell, cast for the

Androscoggin Manufacturing Co., and weighing 10,200 lbs. Notwithstanding the immense body of metal here used, every line is brought out with a perfection that fully entitles this to be styled, " a splendid casting."

The Committee consider this, with the other specimens offered by Messrs. Hooper & Co., as falling within the limits assigned for the award of a

Silver Medal.

1118. CHASE BROTHERS & Co., *Boston.* Specimens of Iron Furniture, Railing, &c. A collection fully sustaining the previous reputation of this firm; among other specimens, the Committee notice particularly a summer house of elegant design, for which they recommend the award of a

Diploma.

These gentlemen have already received the Silver Medal, which would be the highest award in our gift, in the line of their contribution.

1571. T. W. BROWN, *Boston.* Bronzed Iron Work. Very good collection of hat-racks, brackets, twine-holders, and other bronzed iron goods.

345. AMERICAN TUBE WORKS. JOSEPH H. COTTON, TREAS., *Boston.* Seamless Brass and Copper Tubes. To understand fully the merits of these articles, it will be necessary to consider a few details. Previous to the year 1852, the tubes used for the generation of steam in locomotive boilers in this country, were usually made of copper, cut into strips, and the edges brazed together, making at best a comparatively imperfect article. In January, 1852, the above Company commenced the manufacture of "Seamless Tubes." The brass-tubes are identical with those known in England, for the past eighteen years, as "Green's Patent Tubes." They are perfectly solid and polished, and on the outside are of uniform diameter throughout. The bore also is polished, but is of a gradual taper, giving a greater thickness at the Fire-box end than at the Smoke-arch end; an obvious advantage. Solid Brass Tubes have been extensively used in England for many years, and have met with high approval. The prejudice in this country, in favor of Copper Tubes, made their introduction here a matter of some difficulty; but this being effected, and the tubes fully tested by actual experiment in Locomotive, Marine, and Stationary Boilers, they have won that general hearty approval to which their complete success entitles them. There still remaining a strong prejudice with many in favor of Copper Tubes, the Company determined, if possible, to make a Seamless Copper Tube. Any person acquainted with the nature of Copper, will readily understand the difficulties they must have encountered before accomplishing this purpose, it always having been considered impracticable to make a pure Copper Casting, sound, solid, and perfectly free from blow-holes. (It should have been before stated, that these tubes are made from a tubular casting, which is

extended by being drawn through dies, on steel mandrils, and that any imperfection in the casting will prevent making a perfect tube.) After repeated trials for many years, and the expenditure of large sums of money by the Company, the difficulty in casting was at last overcome by one of their principal mechanics, Mr. Freeborn Adams, to whom was granted a patent by the United States, dated August 2, 1859. The advantages possessed by the Seamless Copper Tubes over the common brazed ones, will be obvious upon inspection. Being highly polished on both sides, they will resist the formation of scales, consequently will conduct heat more rapidly. Being tapered on the inside, they have the advantage of a heavy fire-box end, where they are most exposed to wear. Being perfectly cylindrical in section, they are more easily set, and with less hammering, leaving the metal in better condition for resetting, in case of a leak. Being stiff, and perfectly straight, they will keep their position in the boiler better. Each tube is carefully inspected and proved at a pressure of 350 lbs. per square inch; and last, though perhaps not least, a tube possessing all these advantages can be furnished at an expense much less than that of the common brazed tube, thereby rendering its use practicable for a great variety of purposes, such as Pump-linings, Paper-rolls, Hand-rails, &c., &c.

The Committee unanimously recommend that this Company be awarded a Gold Medal, for their "Seamless Copper Tubes," and they would also recommend the award of a Diploma, for their superior samples of improved Brass Tubes.

For Seamless Copper Tubes,	*Gold Medal.*
For Brass Tubes,	*Diploma.*

886. NEW HAMPSHIRE IRON FACTORY CO. *Franconia, N. H.* By PAGE, BRIGGS & BABBITT, *Boston.* Samples of Franconia Pig and Bar Iron. After a suspension of some twenty years, operations have again been commenced in the celebrated iron region of Franconia, N. H.

Although the present company have been at work but a few weeks, and have thus far done little more than to work up the loose ore left by the old company, they have sent us some samples of their products which will rank high with those of any iron district in this country or Great Britain, and we see no reason to doubt their ability to perform their promise, to produce an article equal or superior to the best "Low Moor" iron. The pig-iron shows in its own fracture an excellent texture or grain; while a glance at some portions of car-wheels accompanying it, will show its peculiar adaptation to this important application of cast-iron, as these wheels exhibit a perfectly sound, clear fracture, with a remarkably deep and perfect "chill."

The sample of bar-iron has been subjected to a variety of severe tests, showing a tenacity of fibre not excelled by the Norway or Russian iron.

Hoping that the enterprise of this Company may meet with that success which it merits, and may result in a supply to our markets, of this superior iron, the Committee would recommend the award of a *Silver Medal.*

944. Charles E. Smith & Co., Fairmount Iron Works, *Philadelphia.* Samples of Railroad, and Angle Iron. From this Company, we have a specimen of light T rail, adapted to horse-railroad use, on country roads; and some specimens of angle-iron. All these samples have the appearance of being of good quality, though we had no opportunity to judge of their texture.

We would take this opportunity to suggest to the Company, that the introduction of a good assortment of angle-irons, including the heavier sizes, would meet a want that is becoming rapidly more and more felt in this section.

The same Company exhibit a sample of heavy T rail, with splice, also, some rolled iron chairs of excellent pattern and appearance.

The Committee are in doubt as to whether the splice is offered by the Company for special notice, and if so offered, are still a little in doubt as to their province in the matter, but can say unhesitatingly from personal knowledge of the matter, that this splice is one of the most valuable economic inventions of the day, for railroad use; and if it is now for the first time brought before the Association for their verdict, we consider it clearly entitled to the award of a *Silver Medal.*

For Samples of Railroad and Angle Iron, would recommend a *Bronze Medal.*

AGRICULTURAL IMPLEMENTS AND MACHINES.

Simon Brown,
William Buckminster,
Charles W. Cushing,
Josiah Newhall.
Judges.

The Judges selected to examine the Agricultural Implements and Machines, found a large number of entries on their books, comprising many of the most useful labor-saving implements used upon the farm and in the farmhouse, and many specimens of machines that are positively and happily influencing the industry and prosperity of the country.

The observing person cannot have failed to observe how much the farmer has been aided by the introduction of improved implements and machines in the prosecution of his labors, and as farmers — and all your Committee are such — we find pleasure in acknowledging our indebtedness to the genius of the mechanic in devising and constructing these implements which so greatly lessen our toil, facilitate our labors, and at the same time increase our profits. We believe in progress; that it is better to balance the grain in the bag that is thrown across the back of the horse, than to put a stone in one end of it; better to lessen the friction of the dray by using wheels; and that these principles hold good in most of the tools and machines used on the farm. We believe that farming is the natural pursuit of man, and that as its labors have been guided more by intelligence, and as improved means and modes of husbandry have been introduced, the farmer has assumed a higher rank and has become more influential in every department of the business of men, while by the same means he has been enabled to surround his home with the comforts and elegances of life.

These improvements are mainly effected through a knowledge of mechanical principles, and no association, in our opinion, is so well calculated as yours to increase that knowledge and to produce results that will avert or ameliorate human toil and ennoble and dignify mankind.

It has been estimated by Mr. J. J. Thomas, a careful writer, that the capital for furnishing the farms in the Union with implements and machinery in the best manner would amount to five hundred millions ($500,000,000) of dollars, and as much more is estimated to be annually paid for the labor of men and horses throughout the country at large. To increase the effective force of labor only one fifth would therefore add annually one hundred millions ($100,000,000) in the aggregate, to the profits of farming.

With these views upon their minds, your Committee could not but enter upon their duties with interest and earnestness, and they gave each and every article presented for their examination, all that minute care and consideration to which their importance entitled them.

306. J. T. GRANT & Co., *Junction, Rensselaer Co., New York.* Patent Fan Mill. This mill, or winnowing machine, has been in use several years, and has commended itself by its own merits. *Diploma.*

313. SANFORD ADAMS, *Boston.* Patent Self-acting Screen by Gravitation, Patent Bean Sorter and Cleaner, an Oat Cleaner and Potato Sorter. Four small, *new*, and highly useful articles, that are needed by every farmer, and well entitled collectively to a *Silver Medal.*

318. J. H. MARIEN, *Gloucester, Mass.* Patent Adjustable Ox Yoke, the design of which is to enable oxen unequally matched to draw evenly, by a rack at the under side of the yoke. It can be easily fitted to any yoke. *Diploma.*

322. LUTHER THAYER, *Brighton, Mass.* Green Mountain Feed Cutter. A majority of the Committee thought that for $10, and for coarse, heavy fodder, it was a good article. *Diploma.*

323. STOWE MANUFACTURING COMPANY, *Pleasantville, Conn.* Three Meat Cutters and a Stuffing Machine. Well-made article, but no one appeared to operate or explain them.

519. DAVID S. NEAL, *Lynn, Mass.* Fire escape for Horses. Showing the crib, mode of fastening and means of escape. Good for a large stable, in case of fire.

687. JOHN M. DEARBORN, *Boston.* Coal and Ash Screen. This is a very simple, cheap, and efficient mode of sifting coal and ashes. *Diploma.*

214. JOSHUA DYER, *Chelsea, Mass.* Wire Basket for Washing Oysters. Simple, cheap, and useful.

498. H. O. HICKOK, *Harrisburg, Penn.* By PARKER, GANNETT, & OSGOOD. Cider Mill. In use several years.

498. LOCKEY & HOWLAND, *Leominster, Mass.* By PARKER, GANNETT, & OSGOOD. Excellent. The only objection to it seems to be, it pares an apple so quick that you cannot see how it is done! Everybody needs one. *Diploma.*

763. PHILIP C. ROWE, *Boston.* Hydraulic Car and Window Washer. A brush on the end of a hollow pole from which the water is forced to the brush, keeping it continually wet.

9. M. H. COLLINS, *by* F. M. COLLINS, *Chelsea, Mass.* Patent Double-acting Apparatus for Bolting. It is a new invention, and designed to take the place of bulky, rolling screens, and to save expense in flour mills. It is claimed that it makes no dust, requires no machines to screw the flour to and fro in the chest, saves room, will not clog, and is easily managed. Also, that a machine of this kind, six feet long, will do as much work as two rolling screens eighteen feet long, and make as fine flour. It has a vibratory motion, going at the rate of from two to five thousand revolutions per minute, with a small power, and is both durable and simple.

With this was presented a Winnowing Machine for clearing corn, rye, oats, barley, grass-seed, beans, &c. It is compact and effective. On the two, *Bronze Medal.*

14. ALBERT KELSEY, *Cincinnati, Ohio, by* J. W. MERRILL, *Boston.* Movable Comb or Section Bee Hive. The Judges find nothing in this hive in the way of improvement over other movable comb hives.

199. HARTFORD GATE CO., *Hartford, Conn.* J. A. Ayres's Self-acting Farm Well. This apparatus is equivalent to a living spring, as an animal

brings his own supply. It is better than a pump in a barnyard, as there are no pipes to freeze and split, and no pump to be thawed out in a cold morning. When an animal steps upon the platform to procure water, his weight turns the wheel, and brings the bucket up to the point where it is to discharge itself. This bucket is so arranged that the water in it is adjusted to the weight of the animal upon the platform. An animal weighing 1,200 pounds will bring up about 100 pounds of water. The contrivance is cheap and simple, while it is ingenious and important. *Diploma.*

Under the same number there were presented Ayres's Patent Water Elevator, for raising water from wells of any depth by the force of wind, and a Self-acting Gate for pleasure-grounds and carriage-drive ways. The Water Elevator seemed to combine the principles to make it useful, and the Gate was thought the best, by the Judges, they had ever seen for such purposes, but too expensive for common use. *Diploma.*

24. NOURSE, MASON, & CO., *Boston.* Pitts's Thrasher and Separator. A large, well-constructed machine, capable of thrashing out the grain of a township in a day, if provided with sufficient steam power. No description or explanation of it given.

73. T. A. BREED *or* LYNN GRINDSTONE AND TOOL CO., *Lynn.* By PRINCE & CO., *Agents, Boston.* Grindstones. Excellent articles, hung in good frames and on friction rollers. One could almost ride and grind on them!

77. HAWSE & ADAMS, *Morristown, Vt., by* J. TYLER HALE, *Boston.* Patent Mop Wringer, or Scrubbing Pail. An excellent article; one of those cheap and useful articles wanted in every neat family.

86. WHITTEMORE, BELCHER, & CO., *Chicopee Falls, Mass.* Eagle Cutter. One Corn Sheller, with Separator. Two plain Corn Shellers. All excellent articles, constructed in a workmanlike manner and of good materials. Some of the Committee have used the Eagle Cutter and pronounce it an excellent machine. The proprietors claim the following advantages, viz: Simplicity; durability; ease of operation; that it is perfectly self-feeding; it will not clog; will cut short or long; cuts more than other machines using the same power; the knives rest against copper, so that they will run a long time without grinding, and it will cut corn-stalks as well as hay or straw. To the Eagle Cutter a *Diploma.*

88. D. B. GERRY, *North Cambridge, Mass.* A set of Ice Tools. Well made; useful articles.

108. KILBY PAGE, *Roxbury, Mass.* Door for a Winter Hen House. A useful contrivance.

111. R. S. TORREY, *Bangor*, *Maine*. Maine State Beehive. The hives presented by Mr. Torrey, full of living bees, and the honey so tastefully and ingeniously arranged, attracted the attention of the Judges sufficiently to induce them to give the whole a careful investigation, and to listen with interest to full explanations of the bee-master who had them in charge. If " by their fruits ye shall know them," is a safe criterion, the fruits of the bees and the intelligent manner in which their master controlled their labors, need only to be seen to be appreciated. Mr. Torrey does not only say what *can* be done, but shows what he *has* done; and the " mountains of honey " which some of the Committeee have here and in other places seen about him, testify to his skill in the management of the curious and wonderful bee. His hive is constructed upon true philosophical principles, and is the only artificial hive they have seen which affords a perfect *ventilation* for the breath and vapor of the bees, and they regard this point as more essential in a beehive than any or perhaps all others. He claims, and we think justly, that its form and size are right; the surplus honey can be taken away without disturbing the bees; the condition of the bees can be seen at any time; it has the most *scientific, perfect, common-sense method of ventilation;* fighting prevented; place for bees to exercise in winter; no ice or frost in winter; less travel; outward swarms prevented when desirable; bees fed in their cluster in the winter; moisture is taken from the hive by a condenser; has a moth-trap; no dead bees or filth accumulate between the combs.

Mr. T. also had numerous specimens of the finest honey, some of it boiled to prevent its graining, and to render it more mild to be used in cases of sickness. He claims to have discovered a new process of putting up honey, so that it can be transported any distance without injury.

As honey abounds in the country, and is a wholesome and palatable article, and as the culture of bees has a happy influence upon those who engage in it, we regard the information that will enable us to manage bees and secure their products, as valuable to the community, and therefore recommend the *Bronze Medal.*

168. H. B. DAVIS, *Lexington, Mass.* Patent Horse Ratchet. An excellent article, that enables the horse to travel over marshes or fresh meadows that are flowed half the year.

237. ORRIL R. CHAPLIN, *South Boston.* Model of a Patent, Flexible Knife-Bar Mowing Machine. The inventor anticipates important advantages from the ability of his Knife Bar to accommodate itself to *uneven surfaces.* Your Committee are pretty well acquainted with the operation of mowing machines, and doubt whether the hopes of the inventor will be realized in this particular; but the machine has other important qualities, and especially

one in the power given to the motion of the knives by the *leverage* attached to them. The ease with which it can be thrown in or out of gear, and backing without changing anything, are decided advantages. We hope to see a full-grown machine in operation. *Bronze Medal.*

281. Spence & Co., *Boston.* Fitts's Patent Peat Digger. One of the Committee had used it and thinks well of it.

282. H. Mann, *East Attleboro', Mass.* Vegetable Hand-Weeder, with Garden-Seed Sower attached. By a practical use, some of the Committee know this to be a most valuable labor-saving machine. One man can perform as much service with it as four or five with the common hoe. It requires very little power to use it. *Bronze Medal.*

304. Alzirus Brown, *Worcester, Mass.* Maury's Patent Improved Mowing Machine.

305. Walter A. Wood, *Hoosick Falls, N. Y.* A one-horse Mowing Machine, and a two-horse Mowing Machine.

497. John P. Adriance, *N. Y., by* Parker, Gannett, & Osgood *Boston.* Aultman & Miller's Patent Buckeye Mowing Machine.

All the machines included in Nos. 304, 305, and 497, have been before the public, and each has commended itself to the farmer by the profitable service it has performed. That mowing machines are to have (they have already had) an important influence upon rural, if not all domestic industry, no longer admits of doubt. Every encouragement should be presented to bring them nearer perfection. It is not in the power of your Committee to say which of these machines is the best; each has good points, peculiar to itself, and is capable of performing good work. It would require the labor of several days in the field to test their comparative merits. Their great importance is so obvious to the Committee that they recommend the award

to Maury's Improved Mowing Machine,	*Silver Medal.*
To Walter A. Woods's Mowing Machine,	*Silver Medal.*
And to the Buckeye Mowing Machine,	*Silver Medal.*

304. Alzirus Brown, *Worcester, Mass.*, also exhibited a Patent Spring Tooth Horse Rake, of which the Committee formed a high opinion. They are aware, however, that its merits can only be learned by a test in the field.

133. Edwin D. Bowers, *West Cambridge, Mass.* Case of Horticultural Tools. Very fine. Beside the pleasure derived from the presence of fruits and flowers, there is a *real* comfort in the use of such highly finished and useful tools.

159. G. H. Bundy, *Boston.* Model Potatoe Planting Machine. The machine appeared to the Committee as though it might be a valuable one. No one was present to explain it.

365. Chase & Fay, *Boston.* Hay Cap. A good article. Every farmer ought to use them.

366. H. F. Bond, *Waltham, Mass.* Fence Picket Machine. Cheap, does the work well, and with facility.

367. Joseph Bird, *Mount Auburn, Mass.* Fire and Garden Engine. This is a new, easy working, and yet most powerful little machine. Every farmer and every owner of a house should have one. *Bronze Medal.*

415. A. H. Adams, *Franklin, Mass.* O K Apple Machine. An excellent machine,— pares and slices quickly and well. *Diploma.*

469. French & Nickerson, *Nashua, N. H.* Beehive. Ingenious, expensive,— lacks ventilation.

496. B. B. Belcher, *Chicopee Falls.* By Parker, Gannett, & Osgood, *Boston.* Vegetable Cutter. Appears like a good machine. Needs testing.

635. L. Wetherell, *Worcester, Mass., by* Parker, Gannett, & Osgood, *Boston.* Hoeing Machine. Can only judge of it by practical test. Potato Digger. Same. A good, cheap potato-digger is much needed.

668. J. Doull, *New Bedford, Mass.* Wellcurb with Bucket. A simple, cheap, excellent contrivance.

694. Weld & Chamberlin, *Boston.* Corn Sheller. Nothing new, but very good.

751. Henry F. Glover, *West Needham, Mass.* Cranberry Rake. A good article.

804. Andrews & Co., *Boston.* Granite State Washing Machine. Saw it in motion, and thought well of it.

820. David Lyman, *Middlefield, Conn., by* Nourse, Mason, & Co., *Boston.* Metropolitan Washing Machine, upon the pounding principle. An excellent article.

848. P. & R. French, *N. Y.* Conical Washing Machine. We thought it an excellent machine.

890. F. S. Coburn, *Boston.* Self-opening Gate. Portable Balance Swing. The swing was very handsome, and would be amusing to those who could afford so nice an article.

894. Caleb Bates, *Kingston, Mass.* Stump and Rock Lifter. A description and examination satisfied the Committee that the machine is a cheap, durable, and effective one. *Bronze Medal.*

908. George Jaques, *Somerville, Mass.* Tobacco Wash for Sheep. Your Committee were pleased to learn that a new and important use had

been found for an article in extensive use in this and other countries, and one for which they had but little regard, though a costly and general crop in some of the States, viz: tobacco! From representations by the inventor, they learned that the tobacco-leaf is chopped into fine pieces, then distilled, and the essential oils preserved in the form of a saponaceous paste. One ounce of this paste mingled with sixteen gallons of water forms a wash for sheep, to kill the vermin that may infest them.

The Committee have letters before them from several gentlemen distinguished for their enterprise in sheep culture, and for their investigation of the various breeds of sheep, and the most successful and profitable modes of management, all of which go to establish the fact that this wash is effectual in destroying the ticks on sheep and lambs, without at all injuring the animals themselves. In the letter from the Hon. R. S. Fay, of Lynn, he says: "In my case all the sheep were ticky, the lambs very much so, and they were all effectually destroyed without the slightest injury to the sheep." *Diploma.*

928. MORRILL BROTHERS, *by* R. P. WILSON, *Boston.* Air-pressure Churn. Well made, of good materials, and the easiest to clean of any we have ever seen. Claimed that it will produce more butter from the same cream than any other churn, and that it will be more yellow, and come quicker. *Diploma.*

987. GEORGE H. MORSE & Co., *Boston.* No. 2 Hurlburt's Convex Mould-Board Patent Plow. It has an iron beam.

995. E. J. HYDE, *Delaware City.* Hand and Power Corn Sheller and Cob Separator. *Diploma.*

2008. WHITTEMORE BROTHERS, *Worcester, Mass.* Patent Cylindrical Meat Masher. This machine is intended for mashing beefsteak, instead of pounding, and driving everybody out of the house by the noise; and, it is said, makes the toughest equal to the most tender! It certainly promises to do much towards it. We hope you will encourage the inventor by giving him a *Diploma.*

527. PERKINS & LEWIS, *Boston.* Patent Tree-cutting Machine for felling Trees. A simple and valuable machine,— one that will save both timber and time. *Bronze Medal.*

901. E. J. HYDE, *Delaware City.* Union Portable Feed and Flour Mill. *Diploma.*

MARINE ARTICLES.

Robert B. Forbes, John S. Sleeper,
Samuel H. Pook, Samuel Hall,
Edward F. Porter, *Judges.*

In offering our Report, we would suggest that although the number of articles on exhibition under this head is considerable, there is very little variety, and very little entirely novel in character. Many articles are duplicates of those exhibited in 1856, and some are illustrated by very imperfect models on an irregular scale. It has been our aim to do full justice to inventive genius in articles of utility, and we have only to regret, that the field is so small that there is not much to be said, and that the arrangement of the articles was not the most convenient for critical examination.

Steering Machines.

852. Geo. W. Robinson & Co., *Boston.* Steering Gear, which has been in use about seventeen years, and is a very perfect machine, well made and rather costly. It received a *Gold Medal* in 1849, and as one of the first, if not the very first machine of the kind introduced here, deserves encouragement.

853. Steering Apparatus, by the same. The great competition existing in this line of business, and the demand for a more simple and cheap apparatus, have induced the Messrs. Robinson to get up this machine. It requires only four and a half turns to put the helm from hard up to hard down. It is compact, simple, supports the rudder, and would be lifted without breaking, should the rudder itself lift by any sudden shock. It is cheaper by 25 or 30 per cent. than 852, and will, we think, command confidence *if made* as *all these machines ought to be made*, of first-rate stock.

Silver Medal.

833. E. W. Tarbell & E. A. Simonds, *South Boston.* A small working model of a Steering apparatus for Steamers. The patent bears date July 31, 1860. The model is imperfect in proportion, and is not well calculated to make a favorable impression on the minds of examiners. There appears to be too much machinery intervening between the wheel and the rudder, and the Committee regret that a full-sized machine could not have been exhibited, in order to illustrate a very good principle, and useful invention, more clearly. If the machinery in the wheel-house is made of iron, as it ought to be, to give the requisite strength, it would be inconveniently near the compasses.

427. **William J. Stetson**, *Boston.* Compensating Steering Apparatus. A small working model, like the last, imperfectly exhibiting a good principle for a good purpose. The lever or fulcrum is at the side of the rudder, and near the wheel there is an India rubber buffer, capable of being made more or less rigid or compact by screws, or by the wheel itself when hard up or hard down; thus easing the rudder and wheel from any sudden blow of the sea. This apparatus deserves encouragement, and when illustrated by a full-sized machine, will be entitled to a more prominent notice. In the mean time, we award a *Bronze Medal.*

48. **Francis N. Gove**, *New York,* by **Daniel Milton**, *Boston.* Ship Steering Geer, patented March 30, 1858. This machine works quickly, moving the rudder from hard up to hard down, in three and a half turns of the wheel. It operates on the rudder-head by short arms or levers, similar to several others working in a slot, and giving more power as the force recedes from the central position; the sudden shocks of the sea are relieved by India rubber packings, which constitute its most valuable characteristics.

The machine exhibited wants a place for a tiller, to use in case of accident to the gearing, which *we consider important in all steering machines.* It is powerful, safe, and simple, and, if the stock is good, will be durable and not very expensive. *Silver Medal.*

525. **Samuel Very**, Jr. *Malden, Mass.* Steering Apparatus patented by D. H. Chamberlain, July, 1857. Very similar to the last, No. 48, in power and principle, but it has no India rubber packing to relieve the shocks to which all rudders and wheels are liable. *Bronze Medal.*

54. **Godsoe & Ayres**, *Manchester, Mass.* Steering Apparatus, patented 1859. It moves the rudder from hard up to hard down by three turns of the wheel, is quite compact and effective, and well adapted to small vessels. It will be subject to more friction and be more noisy than most of the others, but is worthy of a trial. *Diploma.*

268. **George T. McLauthlin**, *Boston.* Model of a Steering Apparatus, patented. The proportions of this model are not such as to enable us to judge critically of its practical merits.

294. **Henry Swift**, *Boston.* Steering Apparatus, Richardson's patent, Nov. 1857. The power is applied to the tiller by three endless chains, moving by means of ratchet sheaves firmly attached to the wheel shaft, on which sheaves are cavities and projections firmly embracing the chains, on the principle of capstans for heaving in chain cables. The motion of the machine exhibited is too quick, say two and a half turns from up to down, but this can be remedied by decreasing the diameter of the sheaves on the main shaft. The power on the tiller is available at the right point by means of a travelling

collar on the tiller, as usually applied in vessels of war. The tiller itself is of iron, covered with brass. The latter, we think, is unnecessary, as its constant movement at sea, and the application of a little tallow or oil would keep plain iron always in order for use.

In the machine exhibited, the tiller is attached to a *casting* on the head of the rudder, which, unless made very carefully of "gun-metal" would not be so good in practice as a *wrought-iron* collar.

This machine will be somewhat noisy, unless there be added some means of "setting up" the chains, to compensate for slacking by reason of wear. The chains should be made of first quality iron and galvanized. *This particular machine* is defective, but the principle is good, the work done quick, it is not expensive, and it comes nearer to the ordinary steering gear by ropes, than any other, but is free from the objections to ropes. *Bronze Medal.*

347. WILLIAM P. HUNT, *Boston.* Reed's Improved Steering Apparatus. Patented March, 1855. A model was exhibited in the Fair of 1856. This machine requires seven and a half turns of the wheel from up to down; it is well known and in general use in this country, and our chairman has seen it in use, with or without the India rubber, on large steamers and other vessels in England. It is a very effective machine, highly finished, and the rigidity of the original machine is much relieved by India rubber packing and by movable keys, so that the irregular movements of the rudder by reason of the wear on pintles and by warping is obviated, and thus the wear on the cross-cut screws is much lessened.

As this machine has been in successful use some years, and has never received its due award, and as Mr. Hunt, the present proprietor, has added important improvements of his invention to it since the last Exhibition, we recommend a *Gold Medal.*

445. DANIEL JONES, *Boston.* Steering Apparatus. Patented July 21, 1860. At first sight, this machine appears to have too many cogs and ratchet wheels, and looks cumbersome, but it improves upon acquaintance.

The advantages claimed are power, which is evident; the shaft of the steering-wheel can be placed before or abaft the rudder, in fact, in any position. The whole apparatus can be lifted out of the bits which support it without moving any screws, the tiller can be easily and quickly detached from the gearing, to admit of applying tackles, the shock of the sea is relieved by India rubber, and, by simply putting a barrel on the wheel-shaft and removing a single pinion, the old tiller-rope may be used. For this we recommend a *Silver Medal.*

580. JESSE REED, *Marshfield, Mass.* Model of Ship Steerer. Patented. A very imperfect illustration of the original gear 347, upon which the Committee cannot offer any extended or intelligent opinion; but, as the original machine, it ought to be noticed.

407. LOVELL, ATWOOD, & Co. *Boston.* Snow's Ship Steerer. Patented August 14, 1860. This machine is simple, powerful, compact, and not expensive. The power is applied over the head of the rudder, and the rudder can be lifted without breakage of the machinery. It has some of the parts and properties of Robinson's original apparatus, now out of use for many years, but applied in a better form. It requires four turns to put the helm from hard up to hard down. It is a useful machine, and is, according to the inventors' statement, already adopted by a number of vessels. If it proves to be quiet in its operations, shall be well made of first-rate materials, will have the means of shipping a tiller for relieving tackles, it will become a permanent machine. *Bronze Medal.*

RIGGING, SAILS, AND ATTACHMENTS TO SAILS.

16. A. L. SIMPSON, *Durham, N. H.* Self-reefing Topsail. Patent applied for in 1847, granted with improvements, Feb. 28, 1860. The principle of reefing or reducing topsails by revolving the yard by "parbuckling" gear, dates back even beyond 1847, and was originally spoken of, if not actually introduced, by a Capt. Wade; but Capt. Simpson, so far as we know, was the first in this country to adopt it, in the ship Robert Winthrop, in 1847.

The peculiarities claimed for this mode of reducing topsails are, first, that the slit in the forward part of the sails does not extend below the position of close reef, leaving the band across the sail whole (we consider this a very important consideration), and the cloth which slides up and down to cover the opening in the sail, which is necessary in order to revolve the yard, is kept extended and works on a series of clasps easily replaced or adjusted; the taper of the yard, instead of being compensated for by clumsy battens on the yard itself, is made right for the sail by a cloth hanging before it, to which is firmly attached pieces of cork tapering in thickness as they come in towards the slings. This cork arrangement is claimed to be light, cheap, and durable, and we think it is better than the battens on the yard, for attaining the same end. The mode of attaching the sheave for the top-gallant sheets, and the mode of working the top-gallant studding-sail booms, the braces, lifts, &c. appear to us to be very simple and effective. The lee topmast rigging is triced in by ropes leading to the deck, so as not to be in the way of bracing up sharp. As we suppose Captain Simpson to have been *the first to apply this mode of reducing sail here,* and to have a prior claim to any other person for this very useful and well-known invention, we propose a *Gold Medal.*

868. **Henry Warner**, *Boston*. Self-reefing Topsail. Generally known as the Cunningham rig. This model, on a large scale, but somewhat out of proportion in its details, shows the revolving of the yard by a double parbuckle tie; hoisting on one part unrolls the sail, and letting go the halyards rolls it up or reefs it by the mere weight of the yard and sail; an opening in the sail to permit this, is covered by a travelling cloth or band, which is dropped or pushed down, (not quite so smoothly as Simpson's.) The tapering of the yard is made up by stout and rather clumsy battens, in order to prevent chafing of the sail against the lee rigging, when the sail is reduced; there is a spar about the size of a top-gallant studding-sail boom attached at the outer end to the revolving brace, top-gallant sheet, and lift arrangement; and at the inner end, to the slings or pareil of the yard; this spar is, of course, sufficiently far off to keep the sail from chafing, and on the model looks rather clumsy. The sail has grommet-holes for points at the place of close reef, to serve in bending and unbending at sea, and is very useful in case of accident to the revolving gear.

If the inventor claims any essential improvement over the Simpson mode, we cannot see it; but, if *it is an American invention*, and if he brought it into use in this country after a fair and proper understanding with Captain Simpson, he ought to have the credit of it; and we would, in that case, place him on the same footing as Captain Simpson, and not otherwise.

The Cunningham reducing gear is in use in England, as we are informed, on over three thousand vessels; and, whether it is known as Cunningham's or Simpson's, is a very valuable invention.

102. **Duncan & Davenport**, *Bath, Maine*. Waterman & Russell's Patent Blocks. They are very neatly made for exhibition, and illustrate very neatly a block which has been in use more than fifteen years. There are dead-eyes, also, with the holes cut, so that the lanyard lays *with the grain of the wood*, which is much better for the lanyard than when cut across the grain. *Diploma.*

241. N. **Boynton & Co.**, *Boston*, for **Cumberland Duck Company**. This duck looks well outside, but does not open very well. It is of fair quality only, and we presume is not exhibited as of superior quality and finish.

437. J. **Smith** by **Sylvanus Smith**, *Agent, Boston*. Bonnet Attachments. These consist of attaching the bonnet of fore-and-aft sails by means of brass arrangements, one forming a sort of button or toggle into a plate riveted firmly through the sail; the other, by an eye of brass, through which a lacing or line passes; they are both very neat, and seem to be specially designed for yachts, for which they are very appropriate. Your Committee

prefer the lacing eye to the toggle or button, as less liable to get out by the shaking and slatting of the sails in stays, or in taking in and setting sail in stormy weather; the objections to the plan are, that if the plates or the other parts get out of order by wear or otherwise, some machinery is necessary in order to repair the damage. This objection, however, applies to many new and valuable improvements in labor-saving machines, and must not be made too much of. The inventor is a first-rate seaman, and is a good judge of what will work well in practice. *Diploma.*

488. A. M. SOUTHWORTH, *Port Norfolk, Dorchester, Mass.* Attachment for Sail Cringles. Patented February, 1860. A neat, quick, and secure way of keeping the head cringle well up in its place, and similar in principle and utility to a plan brought out some years since by Captain Crocker. It is rather heavy, and will make a good deal of rust.

550. BENNER & MARTIN, *Boston.* Thompson's Patent Lanyard and Appurtenances. Patented July 17, 1860. The arrangement is very well illustrated, and works well, and enables the seaman to "set up" or to "come up" his rigging very rapidly and very nicely. A single glance at the illustrations of the mode of attaching the ends and of working the screw, will do more to impress the seaman with the value of the invention, than any detailed written description of ours. The apparatus must be kept in very nice order to insure success; and it appears to us that it will be very slowly adopted by ship-builders and owners, though it might be brought into fashion if they had to set up and turn in their own rigging! The iron work and the attachments deserve a *Bronze Medal.*

627. H. HIGGINGS, *Orleans, Mass.*, by DOLLIVER & SLEEPER, *Boston.* Anchor Tripper and a Model or Working Illustration. Patented Jan. 10,1860. Among the many new labor-saving inventions, this stands very high for practical utility. It is simple and strong, and if it gives way, the ship and anchor stand much as they usually do, namely, dependent on a tackle and a fish davit, or on levers and hard work to get the anchor off the gunwale or chock. The attachment to the key which releases the "tripper," and which is illustrated in full size, is made altogether too slight; that essential part on which the well working of the whole depends ought to be strong and available by means of a lever, or handspike on a small scale. The design and intent of the "tripper" is to let go the anchor off the gunwale, or chock, when stowed for sea. *Silver Medal.*

825. BENJAMIN CLAPP, *Boston.* A Modern Pareil Tub. A very well-made article.

980. ALLEN & BENTLEY, *New York,* by C. H. BREWER, *Boston.* Rigging Nipper or Pincher, on a small scale, to facilitate setting up rigging, or to nipper lanyards.

183. JOHN FERRIER, *Charlestown, Mass.* Patent Manifold Blocks. Patented November, 1858. The large-sized Iron Blocks, each containing respectively eight and seven sheaves standing at right angles with each other, appear to be very strong, the strain being taken off the pin by a collar as the main attachment, and in this they differ from any we have seen. The falls or ropes may be swayed upon in two parts, or, by making one fast as the standing part, the other would give the same power by a slower motion. These blocks would be very useful in lifting heavy weights, as boilers and masts, by few men, and sometimes in wrecking, for hauling vessels upon or off of beaches. Every ship-builder should have a set ready to start an unwilling ship off the stocks, and every Navy Yard, in spite of the number of men usually available, should have a set ready for emergencies, where they might save much labor, time, and consequently money. *Bronze Medal.*

WINDLASSES, CAPSANS, PUMPS, ETC.

71. AMAZEEN & WILSON, *Boston.* Patent Windlass Brake. The brake is made to give more or less power by shifting a bolt. The arrangement appears to be effective and useful, but not new in principle.

262. EBEN S. COFFIN, *Boston.* Model of an Improved Windlass. To the Committee, this model shows a good deal of gearing, and is not deemed to be so simple and effective as some others in use.

267. J. L. & R. H. MCLAUTHLIN, *Boston.* Reed's Patent Windlass. This model shows that the windlass can be worked by the ordinary forecastle capstan, and that the latter can be worked by a simple arrangement seperately and without moving the windlass. These models are so small, and necessarily so imperfect, that your Committee cannot do full justice to the merits of a large machine.

346. A. SYLVESTER & CO., *Boston.* Four Reversible Capstans. Slow or fast power. These machines are good strong capstans in general use, and, not being very expensive, are worthy of general adoption.

348. JAMES EMERSON, *East Boston.* Patent Windlass and Model. The working windlass has a drumhead instead of a full capstan, and is intended for use on a flush deck. As Emerson's Windlass had the Gold Medal of your Association in 1856, we can only fully recommend his gearing for ships with confidence.

480. JAMES A. FISHER, *Boston.* Windlass and Capstan Model. A very pretty specimen.

212. D. A. TAYLOR, *Boston.* Three Capstans. They look like those entered under No. 346 in general make and principle, but are a little smoother.

Adams's Patent Capstan. An article of value which has been long before the public.

953. **B. Robbins**, *Machias, Maine.* Improvement in Pumping Gear. The apparatus consists of regular brakes as usually applied, and a fly-wheel and crank attachment acting on the pump spears by a peculiar arrangement. The plan appears very practicable, but your Committee do not quite see where the power of the fly-wheel and crank is superior to the brakes. The application of the power by the fly-wheel and crank is new to the Committee. *Diploma.*

Casks, Boats, Oars, Models, and Sundries.

824. **Walter C. Goddard.** *Boston.* Two Casks. One has plain, and the other galvanized iron hoops. We are informed that the maker of these casks served his time with James Perkins, in the machine and general iron business, and that he has only been engaged as a cooper three years; we therefore award him a *Diploma.*

826. **Josiah Breed,** *by* **Clapp & Goddard,** *Boston.* A 200 Gallon Cask. A very nice article.

825. **Benj. Clapp,** *by* **Clapp & Goddard.** Oval Harness Cask. A neat, well-made article. *Diploma.*

446. **David Warren, Jr.,** *by* **D. Warren & Son.,** *Boston.* Harness Cask. A very nicely made and highly finished article. *Diploma.*

862. **Abijah R. Tewksbury,** *Boston.* Model of a Life Boat. Patented August, 1853. This is a very valuable invention for Steam Vessels, particularly for those navigating the lakes and rivers of the United States; many of them can be carried in a small space. They should not, however, be called "life-boats," because they have no special floating or sustaining power. We know of several cases, and particularly one of very recent date, where a dozen of these "fold-up boats" would have been very useful. Mr. Tewksbury has long sought in vain to introduce them, and deserves a *Silver Medal.*

885. **Peter Lear,** *Boston.* Steamboat Horizontal Propeller and Pump. Very ingenious, if practicable, of which we do not pretend to judge.

197. **R. T. Dodge & Co.,** *Boston.* Three pairs Oars. Very creditable.

656. **J. A. & A. Knowlton,** *Boston.* Oars and Model of Dory. Very creditable.

675. Winsor & Whitney, *Boston*. Four pairs Sculls. Very creditable.

These Oars and Sculls are all excellent in make and material, some of them having arrangements for feathering and keeping in place in the rowlocks, which were unknown in our day. They are worth, all round, a *Diploma.*

The field, in models and specimens of real utility in ship and boat models, is very limited.

64. C. P. Blethen, *Boston*. Yacht Model. Good model for a schooner. *Bronze Medal.*

65. Stephen G. Laskey, *Boston*. Yacht Model. *Diploma.*

425. James Henry Marquand, *East Boston*. The Frame of a Ship, exhibiting a good clipper model, and showing all the timber, beams, knees, &c. Very well done. *Bronze Medal.*

58. James Alcorn, Jr., (8 years old,) *Charlestown, Mass.* Steamboat Models. Very creditable for the age of the maker. *Diploma.*

147. Wm. H. Varney, *East Boston*. Sketch for a Cotton Ship. Too much beam, say thirty-eight feet, for the depth, twenty feet, for a Cotton Carrier, except for a very shoal port. The drawing itself is only a fair specimen of the art. *Diploma.*

164. Alfred Smith Freeman, *Wellfleet, by* N. Snow, Jr., *Boston*. A Boom Foresail Schooner. Very nicely made in detail, with rather too much gilding.

615. D. J. Lawler, *Chelsea, Mass.* Yacht Model. Peculiar in shape. Not liked so well for general purposes as No. 64.

317. J. Noble, *Somerville, Mass.* A full-rigged little ship, much in detail, but small in the execution.

96. W. D. Sherriff, *Boston, by* E. J. Mills. Revenue Cutter. Well rigged, and in good taste throughout, except that she has no national flag set.

Same. A Propeller Sloop-of-War. Very well done, and in full detail, with guns, propeller, &c., &c. She wants only a nationality to be perfect. They are creditably done by a seaman. *Diploma for the two.*

939. H. D. Donnell, *Boston*. Model of Steamer M. Sanford. Very nicely imitated throughout, and a pretty object. *Diploma.*

29. Henry Lewis, *Charlestown*. Model of the U. S. Ship Constellation in glass case. Good proportions, much in detail, and very well done throughout. *Diploma.*

225. **Wm. T Cooper**, *Gloucester, Mass.* Lantern with Reflectors. An excellent lighthouse in miniature, and a very useful article for fishing vessels, and others who desire to exhibit a light all round the horizon.

Diploma.

311. **American Net and Twine Company**, *Boston.* Specimens of Nets, Twine, Lines, and Cork Buoys. Very nicely made articles, and of good stock. *Diploma.*

343. **G. B. Johnson**, *Boston.* A Life Raft. This contrivance consists of a number of air-tight boxes, floats, or pontoons, geared together, so as to open and shut. It is rather complicated in its details, and somewhat expensive to make strong; but all floating contrivances should find more or less favor with the public, as many lives are lost annually for want of them.

Diploma.

614. **Dr. M. R. Fletcher**, *Cambridge, Mass.* Tidal Alarm Apparatus. The object of this contrivance, which is very well illustrated by a large model, is to keep a gong or bell ringing at short intervals near to dangers on the coast in fogs and thick weather. The working of the machine is dependent solely on the rising and falling of the tide. When the tide is rising, *a large wooden float, or buoyant float of boiler iron*, rises with it, the chain or rope by which it is attached to a drum or cylinder after passing round this fixture, has at the other end a dead weight, say about half as heavy as the float; of necessity, the dead weight comes down as the float rises, and the drum turning moves another drum or cylinder, on which are teeth so graduated to accommodate the amount and speed of the rise and fall of the tide that any considerable rise and fall, however slow it may be, moves the arms which strike the bell or gong. The teeth are so arranged that the flood or ebb is denoted at intervals by two blows in rapid succession. The apparatus must be so inclosed as to protect it from the sea, yet leave it free for the tidal action; it will be liable to obstruction by freezing in severe weather. It would appear supererogatory to state that when the tide is falling, the float being heavier than the dead weight, loosing its support, goes down while the dead weight rises, and the cylinder then turns the other way. It is by this reverse motion that the striking is made to say to those who have the key, the tide is rising or falling. It appears that such machines, if carefully made and placed under the superintendence of lighthouse keepers, or other competent men, by the Government, at the right points, as in the case of the present clock-work fog-bells, would be useful to navigation, but it is a subject which your Committee would readily refer to experts in the United States Service, as being more competent to judge of than ourselves.

The inventor claims to adjust his teeth so as to make them do their duty in all places where there is a regular rise and fall of tide, whether it be three or four feet, or twenty. He also claims to be able to denote to those who have the key or instructions, the position or location of the sound, by the intervals between the blows, but as the tide rises much faster at some times than at others in the same place, this would be difficult to manage so as to be of practical use.

As the apparatus is new to us, and as it cannot do any harm by misleading mariners, and in view of the ingenuity of the machine, we award a

Silver Medal.

262. EBEN S. COFFIN, *Boston.* Design for ascertaining the draft of water of a ship. We quote the description by the inventor. "The construction of this design is as follows: a lead pipe of half inch orifice runs from the bottom of the ship outside, to a copper cylindrical chamber of four inches' diameter, which is in length sufficient to extend from the ship's lighest draft of water to one foot above her deepest draft; on this chamber is a float connected by a chain to a wheel placed over the same; from the opposite side of this wheel runs a chain suspending a balance weight somewhat lighter than the float, which is for the purpose of making the wheel act with certainty. Attached to the axle of the wheel is a hand which moves over a dial on which is marked the feet and inches corresponding to the rising of the float; and in action, as the ship settles on the sea, the water flows slowly in, and finds its level in the chamber, carrying up the float when the wheel winds up its chain, and the hand points on the dial to the ship's immersion."

The idea is a good one for those who want the information, as to their draft of water; and by having one machine at each end, as well as midships, the hogging of a long ship might be detected. Your Committee cannot, however, place so high an estimate on the practical utility of the invention as to give it any special notice.

750. W. H. DARLING, *New York,* by R. M. PRATT, *Boston.* A Lapstreak Wherry. Very nicely finished and painted. *Bronze Medal.*

797. R. BEECHING & Co., *Boston.* Cork Life Belt and Float. The first is a good sample of the belt or float used by the Royal Nautical Life-Boat Institution in England, and is much approved in that country. It is capable of supporting two persons, and may thus sometimes be better than if less bulky, and less costly. In this country the public will not be saved if it costs much to do it; that is to say, the general rule is for those who are fitting out steamers, and who want to comply with the law *as to the number* of life preservers to put on board of their ships or steamers, a good article for sustaining one person. *Some* go for the cheapest article. We think, therefore,

that the lowest row of cork should come off of Mr. Beeching's belt, in order to meet the requirements of the law and the wants of the public,—it will then be the best body "life preserver" that we know of. The twine should be countersunk in the cork.

The cork floats or buoys are the best thing of the kind that we know of, but are not new in shape or material.

324. SAMUEL R. BARTLETT, *Boston.* Tubular Row Boat. This machine consists of two long, water-tight metallic tubes, pointed at the ends attached to which is a regular wherry seat and outrigger rowlocks. We should class it among boats, as we would an eighty-pound trotting sulky among vehicles, excepting that it will not capsize easily.

BEALS & HOOPER, *Boston.* A Model of a Floating or Life Preserving State Room Door. This was a suggestion of our Chairman, several years ago, when a full-sized door was exhibited and not noticed. It consists simply of the frame of a door, with air-tight metallic panels, painted to imitate a regularly made wooden door; it is to be hung on pintle hinges, so simple in construction that any one may take up his door and walk overboard in smooth water with perfect safety, if he has his wits about him. The door should have several handles firmly fastened to it, to grasp. A very simple and valuable auxiliary to safety in such cases as the Lady Elgin, and many others painfully fresh to our minds, and we cannot too strongly call attention to it.

PHILOSOPHICAL INSTRUMENTS.

THOMAS SHERWIN, JOSIAH P. COOK, JR.
JOSHUA B. STEARNS, *Judges.*

600. E. S. HARRINGTON, *Boston.* Adomitor. This is an instrument for performing addition mechanically, and requires no special remarks.

315. JOHN MULLIKEN, *Boston.* Case of Spirit Levels. These are well made and excellent articles. Some of them are furnished with three levels for the convenience of levelling overhead. They can also be adjusted so as to make them applicable to grading.

563. J. W. CONVERSE, *Boston.* A Case of Minerals. This case contains specimens of silver and copper from the region of Lake Superior, exhibiting the curious manner in which these metals are deposited in that locality. From the laboratory of Nature, they are fine samples of her handiwork.

842. T. F. CLEVERLY, *North Weymouth, Mass.* A Calculating Machine. This is regarded as an entirely original invention. By means of

it, addition may be performed with considerable rapidity, and perfect accuracy, although not so rapidly as it can be performed by a good arithmetician with the aid of pen and paper. The principle and the machinery are very simple, and with the decimal notation the range of the principle is unlimited. The limits of this particular machine are thousands and eighths. The only question is, whether the end is worthy of the means. Its use requires almost no intellectual effort, and it can be worked by any one who can read numbers.

It might perhaps be advantageously applied in all cases in which the object is to find the sum of several numbers without noting down the numbers themselves, as in estimating a quantity of lumber, the cargo of a vessel, and other similar operations. It might also be used to verify an amount obtained in the usual manner. But, however the utility of the machine may be estimated, the inventor deserves considerable credit for the ingenuity displayed.

Bronze Medal.

904. J. F. Huddleston, *Boston.* Thermometer. A large, well-made instrument, fully sustaining the reputation of the manufacturer, who has long been distinguished for the excellence of his articles, and who has received marked approbation from this Association.

872. Gilman Joslin, *Boston.* Globes. These are excellent articles, and present some new features in the mode of mounting. They deserve commendation for good workmanship, and adaptation to the wants of instruction.

149. John M. Merrick & Co., *Worcester, by* R. R. Ray, *Boston.* Timby's Patent Barometers. These articles are intended for common use, and will serve very well the purpose of those who wish only to know the changes of the weather, so far as they can be inferred from barometric indications. The mercury can readily be inclosed in the tube, which has an India-rubber joint, to obviate the danger of the tube's bursting by expansion of the mercury. When the fluid is thus inclosed, the instrument may be transported without liability of derangement. *Diploma.*

784. E. C. Rogers, *Boston.* Lightning Rod and Insulated Supports. These are fair articles. The supports applied to telegraphic wire are as good, perhaps, as any made. There is certainly no harm in taking extraordinary precaution to secure insulation to the supports of lightning rods. But the Committee doubt whether statical electricity of high intensity, and in close proximity to a tolerably good conductor, can be effectually secured from lateral discharge.

213 and 598. Currier & Simpson, *by* Amos Sanborn, *Agent, Lowell, Mass.* Portable Union Barometers. In this instrument the mercury rests

upon a column of confined air, and the barometer and thermometer are so combined, that it is said no correction in the barometric column is necessary for a change of temperature. This union of the two instruments is claimed as new. By means of a vernier, the height of the column is measured to within one hundredth of an inch. The instrument has been in use some time, and is found to range proximately near to the standard barometers. The construction of the instrument allows of its being limited to the height of about fifteen inches. It is regarded as much superior to the common parlor barometer; it is sufficiently sensitive, and is accurate enough for all the ordinary purposes of a weather-glass. But the instrument involves so many variable elements that, unless very carefully constructed, it would be liable to serious error. *Bronze Medal.*

205. WM. B. AVERY & Co., *Cambridge, Mass.* Fire Escape. This is an ingeniously contrived apparatus, and if rightly managed would undoubtedly enable one to descend in safety from a burning building. But whether, in the loss of self-control very generally suffered by those in imminent danger of being devoured by fire, the machine would often prove efficacious, must be left to use and time to determine.

491. A. BECKERS, *New York, by* JOS. L. BATES, *Boston.* Rosewood Stereoscope. This is a very ingenious arrangement, by means of which a large number of stereoscopic pictures may be presented to view, by simply turning a handle at the side. This is accomplished by placing the pictures in frames which are attached to an endless belt passing over a square axle; by which means, each picture is brought at once to the proper position by the lower edge of the picture-frame resting upon the square part of the axle. It is this peculiar contrivance which allows a very large number of pictures to be arranged in a very limited space. There is, also, an adjustment by which the focal distance of the pictures can be arranged for persons with long or short sight. It is beautifully made of rosewood, and very ornamental for parlor use. It compares favorably with other stereoscopes, in exhibiting both opaque and transparent pictures, and it possesses the great advantage over others of preserving the entire selection of pictures from injury by handling or accident. As a most interesting and ingenious apparatus for exhibiting the beautiful optical effects of binocular vision, this instrument is deserving of high commendation. *Bronze Medal.*

847. N. B. CHAMBERLAIN & SON, *Boston.* Air Pumps. The workmanship of these instruments is excellent, and they are beautiful to the eye. They work very efficiently, and produce a good vacuum. To "Chamberlain's Pumps," a Gold Medal was assigned on a former occasion, and the Committee have reason to think that the instruments now ex-

hibited are quite as good as, and probably superior to, any hitherto presented by the senior member of the firm.

714. Geo. W. Thayer, *Boston.* Metallic India Rubber Slates for Schools. Good articles.

750. A. E. Rowe & Co., *Boston.* Annunciator. This contrivance would, without doubt, prove very useful and convenient for communicating signals in public houses, for which it is designed.

946. R. B. Tolles & C. E. Grunow, *Canastota, N. Y., by* Charles Stodder, *Boston.* Inverted Microscope. The Inverted Miscroscope, invented by Professor J. Lawrence Smith, of Louisville, Ky., is a valuable aid in chemical analysis. The body of the miscroscope is bent at an acute angle, with a four-sided prism in the bend, and the object-glass is placed beneath the stage. By this arrangement, the object under examination is viewed through the glass slide, or watch-glass, on which it rests, and the object-glass and its mountings are secured from being dimmed or injured by the vapors or gases evolved in chemical processes; thus obviating the most serious difficulty which has hindered the use of the miscroscope in chemistry. Since the space over the stage is unobstructed except by the mirror, which is some distance above, the object on the slide is easily within reach of the hand and eye, and, as no covering glass is requisite, reagents can be applied with the greatest facility. The present instrument exhibits some ingenious modifications introduced by the makers, and is of a high order of excellence, both in its optical qualities and its mechanical arrangements. The most important parts, the object-glasses, are of the first quality, and most creditable to the manufacturer. The eye-pieces are of a new construction, and are considered by good judges who have used them to be excellent. The optical part of this instrument was made by R. B. Tolles, of Canastota, N. Y., and the mechanical parts, by C. E. Grunow, of the same place.
Silver Medal.

97 and 464. Thomas Hall, *Boston.* Telegraphic and Electro-magnetic Apparatus. The articles in this lot are exceedingly well made, exhibiting a more than ordinary degree of mechanical skill. The medical instruments seem admirably adapted to the uses for which they were intended. If the "Dial Telegraph" will perform what is claimed for it, and that without liability to fail, it will prove valuable in public houses, large manufactories, and other similar places, where a high degree of skill in telegraphing is hardly to be expected. *Silver Medal.*

109. John W. Wilcox, *Boston.* Copper-faced Dresser Rollers. These rollers are of cast-iron, faced with copper by the electrotype process. They are intended as a substitute for rollers entirely of copper or of soapstone,

with this improvement; the faces are harder and purer, and consequently less subject to be acted upon by the sizing, which is liable to contain acid produced by fermentation, and these rollers are much more economical than those entirely of copper or of soapstone. *Bronze Medal.*

SURGICAL INSTRUMENTS AND DENTISTRY.

THEODORE METCALF, WINSLOW LEWIS,
RICHARD M. HODGES, *Judges.*

The Committee find but a small number of articles exhibited, which properly come under the head of Surgical Instruments and Dentistry, and none of them which are, at the same time, new and important.

1058. MISS S. D. CARMAN, *Middleton, N. Y.* Case of Trusses and Braces, of good workmanship.

175. JONES & WHITE, *Philadelphia.* Case of Dentists' Materials. The Teeth of excellent quality and natural appearance, fully sustaining the high reputation which they have so long enjoyed. *Diploma.*

193. DAVIDSON SYRINGE CO., *Charlestown, Mass.* Case of Elastic Syringes. Well and substantially made.

198. MOREY & SMITH, *Boston.* Case of Syringes, of various patterns. Good.

248. DOCTORS DALY & ROLFE, *Boston.* Case of Dentistry. Creditable to a beginner.

439. JOHN H. BLAISDELL, *Boston.* Artificial Teeth. Good solid blockwork.

475. CHAS. A. BOWEN, *Boston.* Carved Splints and Fracture Apparatus. Well made.

490. S. S. GIFFORD, M. D., *East Stoughton, Mass.* Arnica Adhesive Plaster and Prepared Glue. Useful.

616. CHAS. C. REINHARDT, *Baltimore, by* STEPHEN ROWE, *Boston.* Glass-pad Double and Single-lever Truss.

623. N. C. LEWIS, *Boston.* Dentist Rest. A convenient addition to a Dentist's Chair.

737. DRS. PRAY & RUSSELL, *Great Falls, Exeter, N. H.* Case of Artificial Teeth. Good finish, and well set up.

742. PALMER & CO., *Boston.* Case of Artificial Legs. At the Exhibition of 1850, these artificial limbs received the highest commendation and an award of a Silver Medal. They have been somewhat improved in the details of workmanship. *Diploma.*

817. **Henry Hodson,** *Boston.* Gold Foil, of good appearance.

926. **M. S. Burr & Co.,** *Boston.* Case of Nursing-Bottles and Inhalers. Convenient and well adapted to their different uses. *Diploma.*

943. **H. H. Burrington,** *Providence, R. I.* Uterine Elevator.

623. **N. C. Lewis,** *Boston.* Patent Over-Shoe, to prevent slipping. Well calculated for the purpose intended.

BOOTS AND SHOES, LEATHER AND SHOE TOOLS.

Charles Hayden,
James A. Woolson,
N. P. Coburn,
Theodore H. Bell,
O. Gilmore,
Judges.

The Committee regret that this important branch of the industrial interests should not have been more fully represented at this interesting Exhibition.

It gives them pleasure to state that the articles they have been called upon to examine are, most of them, worthy of more than a passing notice. Some of them for their beauty of finish, superiority of style and fitting, and excellence in quality and workmanship, commanded our highest admiration.

251. **Kimball & Wright,** *Boston.* Ladies and Children's Boots and Shoes. Fine quality of stock and work. *Diploma.*

1211. **Tyer, Boice, & Co.,** *Boston.* Composition Shoes and Shoe Stock. A neat fancy article. *Diploma.*

355. **John F. Pray & Son,** *Boston.* Gentlemen's Boots and Shoes. Excellent work, stock, and finish. *Bronze Medal.*

586. **Elijah Wyman, 2d.** *Woburn Centre, Mass.* Gent's Congress and Balmoral Boots and Shoes. Very superior work. Excellent fitting and finish, surpassing anything the Committee have ever seen in this department. *Silver Medal.*

583. **E. & A. Penniman & Co.,** *South Braintree, Mass.* Gentlemen's Boots. A very good article. *Diploma.*

184. **Guy Lamkin,** *Boston.* Ladies, and Gent's Boots and Shoes. Well fitted and finished articles. *Diploma.*

34. **Wm. A. Harris,** *Patentee, Providence, R. I.* Two pairs of Ladies' Rubber Shoes. A new invention.

2013. **Chase, McKinney, & Moors,** *Boston.* Copper-toe Shoes. A very good article for hard usage. *Diploma.*

569. **Kimball, Robinson, & Co.,** *Brookfield, Mass.* Machine-made Brogans. Very strong and well-made articles. *Diploma.*

2012. **Henry Wright,** *Boston.* Wooden-sole Boots and Shoes.

2024. **Jackson Richardson,** *Boston.* Patent Rubber Shoe Tops. New invention. Worthy of notice; neat and useful. *Diploma.*

Leather and Tools.

158. **Henry C. Rand & Co.** *Boston.* Leather Findings. Very good articles. *Diploma.*

321. **John F. Foss,** *Malden, Mass.* Leather Findings. Good articles.

326. **E. & J. Field,** *Agents, Boston.* Specimen of tanning in seven days.

626. **Merriam & Norton,** *Charlestown, Mass.* Leather Shoe Bindings. Very good article. *Diploma.*

582. **Benjamin Poland,** *Boston.* Morocco Skins. Excellent article. *Diploma.*

880. **Alfred Loring,** *Hingham, by* **J. B. Kendall,** *Boston.* Calf Skins and Russet Leather, tanned in seven days. Excellent stock and finish. *Diploma.*

881. **Josiah B. Kendall,** *Boston.* One Jar of Sod Oil. A very good article for curriers' use. *Bronze Medal.*

266. **Freeman & Cunningham,** *Boston.* Specimen of Buff Leather. Good article.

643. **James N. Dow & A. B. Shed,** *Boston.* Colored Morocco and Pebble Calf Skins. Good stock.

144. **Payne & Rodgers,** *Boston.* Roll of curried Calf Skins. Good stock.

830. **Jacob Boos,** *Boston.* Bundle of Calf Skins. Fair stock.

257. **Addison Avery,** *Boston.* Specimen of Buff Leather. Good stock.

399. **Frederick Carl,** *Boston.* Calf Skins. Fair stock.

398. **William Mullar,** *North Cambridge.* Calf Skins and Hair Calf Skins. Superior stock and finish. *Diploma.*

191. **Miller, Stephens, Delaplain, & Co.,** *Philadelphia.* Waxed Calf Skins, by a new mode of tanning. Very good stock and finish. *Diploma.*

297. **J. O. Bullard,** *Natick, Mass.* Case of Shoe Knives. Good article.

236. **John Jennings, Jr.**, *Natick, Mass.* Case of Shoe Knives and improvement in handle. Very good and well-finished articles, and an important improvement in the handle, by which one handle will answer for any number of blades. *Bronze Medal.*

44. **P. E. Millay & Co.**, *Feltonville, Mass.* Specimen of Lasts and Patterns for Last finishing. Fair article.

84. **Charles E. Woodman & Co.**, *Boston.* Boot and Shoe Patterns. Excellent articles. *Diploma.*

176. **Gilson & Walker**, *Boston.* Sample Lasts. Good style and finish. *Diploma.*

505. **A. T. Goodwin**, *Lynn, Mass.* Specimen of Lasts. A very good and well-finished article. *Diploma.*

695. **W. Heath**, *Bath, Me.* Shoemaker's Edge Key. A useful and important invention. *Bronze Medal.*

182. **S. K. Taylor & Co.**, *Marlboro', Mass.* Shoe Cutters and Sole Dies. Very superior articles. *Bronze Medal.*

230. **McLaughlin & Nash**, *Stoneham, Mass.* Case of Cutters and Sole Dies. Good articles.

CARRIAGES, HARNESSES, SADDLERY, HOSE, &c.

Reuben Reed, John P. Barnard,
Simon G. Cheever, *Judges.*

The Judges have examined the various articles submitted for their inspection, and make the following report:—

41. **American Whip Company**, *Boston.* Case of Whips. A splendid exhibition of work, design, and material. *Silver Medal.*

155. **John T. Ogden**, *Boston.* Carriage Window. A desirable improvement for private carriages.

208. **C. G. & H. M. Plimpton**, *Walpole, Mass.* Carriage Springs and Axles, good articles. Tire Benders, well made and well adapted to the purpose for which they are intended.

244. **W. H. Bustin**, *Watertown, Mass.* Horse-Collar Block. A superior article. *Bronze Medal.*

272. **Henry Cross**, *Boston.* Two Horse Collars. Ordinary.

332. **Sabin, Page & Co.**, *Boston.* Set of Wagon Wheels. Good pattern and of superior stock and workmanship.

334. **Charles H. Johnson**, *Weymouth, Mass.* One Wheel Jack. A good design.

385. Cummings, Rich, & Co., *Boston.* Trunks, Valises, Bags, and Horse Blankets. Very good articles. The blankets very highly wrought, and of handsome design. *Bronze Medal.*

416. Henry Taylor & Co., *Boston.* Carriage Wheels. A good set.

436. James L. Tyler, *Boston.* Trunks. A good store article.

697. J. J. Pike, *Chelsea, Mass.* Carriage Jack. Superior in design and good work.

732. Nichols, Thomas, & Co., *Roxbury, Mass.* One Buggy. A superior article, having many improvements. The boot much admired. The shaft connection a new improvement, worthy of especial commendation. *Bronze Medal.*

Buggy Wheels. Superior in stock and workmanship, the sharp edges to the spokes not so desirable.

740. Charles R. Field, *Greenfield, by* J. Wentworth, Jr., *Boston.* Children's Carriages. Some of them of very good patterns, and all of good stock and highly furnished. *Bronze Medal.*

746. James Hall & Son, *Boston.* Phaeton. A superior carriage, in stock, design, and workmanship. *Silver Medal.*

773. John R. Holmes, *Boston.* Two Riding Saddles. Superior stock and workmanship. *Bronze Medal.*

838. Kkowles & Sibley, *Warren, Mass.* Two Patent Jack Screws. Having a ratchet attachment, an improvement over former jacks.

889. Union Wheel Company, *by* W. T. Wheeler & Co., *Agents Boston.* Buggy Wheels. Good stock and workmanship.

889. W. H. Haskell, *Pawtucket, R. I.* Specimen Card of Coach Screws. A superior article.

983. James Taylor & Co. *by* Joseph Armstrong, *Boston.* Chaise Harness. Good stock and work.

989. G. Danielson & C. A. Sheelen, *Boston.* Carriage Axletree. Well made.

991. John Prendergast, *Boston.* Double-purchase Trace Buckle. The best article we have seen, and worthy of especial notice. *Diploma.*

641. Albert H. Watkins, *West Needham, Mass.* Barouche Buggy in Miniature. Good work for a boy.

989. Alvin Coleburn, *Leominister, Mass.* Card of Horse Combs and Martingale Rings. Superior stock and workmanship.

2001. Henry Taylor & Co., *Boston.* Stand of Plated Carriage Trimmings. Good articles.

MILITARY EQUIPMENTS.

Ivers J. Austin, William Sutton,
Eben W. Stone, *Judges.*

The Committee report upon the various articles submitted to their inspection as follows: —

1548. Charles O. Eaton, *Boston.* One Regimental Standard. Very well executed. *Diploma.*

1606. Miss M. M. McIntyre, *East Boston.* One American Flag. A very good specimen of work.

80. William Read & Son, *Boston.* One Case of Colt's Fire-Arms, apparently containing every variety of his manufacture. One brass cannon (calibre 3 lbs) for ship service, on a best improved carriage, complete with armament. Also, ship's pistols, swivels, &c.

A case of fire-arms containing many specimens by different inventors. In this case is a pair of beautifully finished pistols in case, made to an order from the King of Siam for his own use. Also, a "Maynard rifle," and an improved "Sharpe's rifle."

Both of these rifles are so well known as to render a description of them unnecessary. The defect in "Sharpe's rifle," as exhibited in 1856, it is understood consisted in the escape of gas at the breech. This defect has since been remedied by a contrivance thus described by the inventor. "The slide which closes the rear end of the barrel is cast-steel hardened. In its face, a steel ring is inserted around the circumference of a concavity, in the centre of which the vent enters. This ring is called a "gas check;" the action of the charge when fired is against the inner surface, forcing it out an imperceptible distance against the rear end of the bouching, so as to close the joint and prevent the escape of any portion of the force of the fired charge.

The Committee are informed that experience has shown that this contrivance answers the purpose completely, and thus renders Sharpe's rifle one of the best breech-loaders in use. They deem it so excellent and ingenious an improvement in construction as to deserve a *Silver Medal.*

Maynard's rifle has recently attracted much attention. The first patent was obtained by the inventor in 1851; since then, five others have been issued to him, of which four were issued in 1859.

In the month of October, 1859, a trial of this rifle was made under the direction of the Bureau of Ordnance and Hydrography, and a minute report of its results drawn up by Captain Dahlgren, a copy of which is published in the pamphlet of the "Maynard Arm Company."

"A screen ten feet high and twenty feet wide, made of one-inch pine boards, was placed at a distance of 500 yards, and 250 shots fired at it in the course of two hours. Every shot struck, one only on "*ricochet,*" and "four fifths of all the shots were included in a space of four feet square;" "237 shots were fired into a target three feet by six feet, of which every shot struck;" "602 shots were fired, and the piece worked quite well at the 562d fire, when it was cleaned of the slight foulness that had accumulated."

*Silver Medal.**

249. Wm. R. Schaeffer, *Boston.* A Case of three Guns and two Powder Horns, of very superior workmanship. *Bronze Medal.*

285. N. & G. Whittemore, *East Cambridge.* A case of Two Double-barrelled Shot Guns, Five Target Rifles, and Two Rifle Telescopes. These articles are presented only as specimens of workmanship, and fully sustain the high reputation of the makers.

The shot guns, the Committee are informed, have a peculiarity in the bore, which improves the accuracy of the piece. This consists in gradually diminishing the diameter of the bore, beginning at about five inches from the muzzle, up to which point the bore is perfectly cylindrical. It differs essentially from what is known as "choke bording," where the diminution is very sudden, and begins a short distance, something like the sixteenth of an inch, from the muzzle. All the shot guns manufactured by this firm are made on this principle, which they claim as their invention, and as one much improving the practical value of the piece. The rifles, in this case, are all muzzle-loaders. The targets of four of them were exhibited and showed extraordinary accuracy in firing, and indicated a merit in these rifles superior to that of mere workmanship. Mr. Whittemore claims that it is derived from the peculiar twist of the bore. This is in each rifle a "gain twist," beginning at the breech with one in eleven feet, and terminating at the muzzle with one in two feet. This exact proportion he claims to have been discovered by himself to be better than any other, and that it answers equally well in barrels of 28, 30, or 34 inches. *Silver Medal.*

738. C. Gunderson, *Worcester.* Target Rifle. Very excellent work. Every part of this rifle except the bore, the exhibitor states, was made by himself. *Diploma.*

747. John. P. Lovell, *Boston.* Show Case of Guns. They appear

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* At the request of the Chairman of the Committee of Judges, the Editor will state that the *Executive Committee* did not make so high an award for this or for No. 738 as the Judges recommended.

to be of good workmanship, but the Committee are without any information concerning their peculiarities.

936. R. CRANSTON, *by* H. A. JONES, *Boston*. Improved Rotative Spring Lance for Shooting Whales. The exhibitors informed the Committee that this contrivance has been found by experiment to be of practical value. But they have not been instructed as to the principle of its operation, and can express no opinion in relation to it.

739. C. O. WOOD, *Worcester*. One Cap Cartridge Rifle. The Committee deem this rifle, for which the inventor has applied for a patent, to possess a principle of very great merit, and they therefore think it proper to explain its peculiarities as fully and as clearly as possible.

It is distinguished from all other rifles by two principal contrivances, viz:

1. That for loading.
2. That for disengaging the cylinder of the cartridge after the discharge.

As to the first particular, the barrel is so pivoted on to the stock, that upon disengaging the barrel at the breech end, the weight in front of the pivot raises the breech just enough to allow the insertion of a cap cartridge. The barrel is secured to the stock at the breech end by a detent worked by a small catch lever on the left side of the stock. By pressing this lever with the thumb of the right hand, the barrel is immediately disengaged and the breech elevated. Should it happen that the cylinder expands by bursting, and thus sticks so that the muzzle weight fails to raise the breech over the recoil plate, the trigger guard acts as a lever (entirely disconnected from the barrel) to raise the breech. This necessity, in 400 shots which were fired as hereafter stated, occurred only twice. The operation of loading is performed by the combined action of the "*sliding rest*," and the "*bevelled face of the recoil plate*."

"The sliding rest" is formed of two short horizontal bars or slides, connected by a bar across one end, which bar is hollowed out to fit the cap-cartridge which rests upon it. The slides play in two holes, one on each side of the bore. In each of these holes is inserted a spiral spring against which the slides press, and by which they are worked. The rifle is loaded by holding it in the left hand, the breech properly elevated, the stock resting under the arm. The cartridge is placed upon the sliding rest and pressed forward with the thumb until it has passed the edge of the recoil plate, when, with a clasp and a slight pressure of the left hand, the cartridge is forced into the barrel by the bevelled face of the recoil plate, which acts as a lever to push into place the sliding rest upon which the cartridge is placed.

As to the second particular, that for discharging the cylinder of the cartridge after the explosion, the sliding rest acts in unison with another lever, which has its fulcrum in a projection on the under side of the barrel, its long arm extending under the recoil plate, so that as the muzzle falls, the long arm of the lever strikes the under side of the recoil plate, which throws the short arm of the lever (the end of which is reduced to a thin edge, and which is in position immediately forward of the rim of the cap cartridge) back towards the stock, and starts the exploded cap from the barrel, when it is seized by the sliding rest, and the cylinder is thrown entirely from the rifle, as far as six or eight metres.

The barrel is easily and quickly separated from the stock by the removal of the pivot screw. A projection upon the under side of the barrel, quite at the breech end, works in the stock and thus relieves the pivot from the force of the discharge.

The description of these ingenious contrivances may give the impression that the machinery is complicated. It is however exceedingly simple, and the action of it can be comprehended perfectly upon a slight inspection.

The Committee were so impressed with the merits of this rifle, that they desired some practical evidence of the manner in which it worked. Two of them, therefore, accompanied the inventor to a retired place in the neighborhood of the city, where the piece was fired four hundred times.

After the four hundred shots were fired, the rifle was in as good condition as when first discharged, every part working with perfect facility and accuracy, the foulness which had accumulated being very inconsiderable. Neither of the Committee could perceive any escape of gas from the breech, nor did the grooves appear to be loaded.

No experiment was made as to its penetrative power, although on a subsequent trial one of the Committee, with the same cartridge, sent the ball through four inches of pine boards at fifty yards.

In the quality of rapid loading and firing, the Committee are of opinion that no breech-loader yet invented can compare with it, while in all the other requisites of a breech-loader, the results of the trial above stated, at least strongly tend to show that it is not inferior to any other breech-loader known. The Committee see no reason to doubt that the principle of this rifle can be successfully applied to these of any calibre and of every service. *Silver Medal.*

HOUSEHOLD ARTICLES. WOODENWARE, ETC.

Jabez W. Barton, Wm. A. Saunders,
Lewis Rice, *Judges.*

1111. Chandler, Fisher, & Co., *Milton, Mass.* Patent Self-acting Curtain Fixtures.

These fixtures are adapted to operate either within the window groove or on the external part of the window casing. The roller revolves with a uniform pressure, and the shade is held wherever desired. It is not liable to get out of order, and is of moderate cost. *Bronze Medal.*

1520. George W. Chipman, *Boston.* Self-adjusting Curtain Fixtures. Very good, but not so free and agreeable in action as some others. *Diploma.*

516. Benjamin Bray, *Salem, Mass.* Patent Improved Balance Springs for Window Shades. Possessing decided advantages over any article of the kind on exhibition. *Bronze Medal.*

289. Charles L. Fowle & Co., *Boston.* Venetian Blinds, Window Shades, Italian Awnings, Patent Mosquito Bar, and painted Window Screen. These articles are all got up in good taste, are useful, and admirably adapted to their several purposes. *Bronze Medal.*

1569. William P. Homer, *Boston.* Window Curtain, we report favorably.

55. Hiram H. Herrick, *East Boston.* A case of Herrick's Patent Improved Carpet Sweepers. Mr. Herrick was the original inventor of the Carpet Sweeper, and the one now exhibited is greatly improved. The improvements consist mainly in its ability to sweep nearer the sides and corners the room, in its being smaller in size, in its freedom from noise while operating, and in the facility with which the roller or brush can be taken out, cleaned, and replaced. *Silver Medal.*

1533. Otis H. Weed & Co., *Boston.* Rubber-Band Carpet Sweeper; the case of this article is made of tin. It is compact, sweeps near the corners and sides of the room, operates well and without noise. *Bronze Medal.*

22. Charles D. Kellogg & Co., *Agents, Boston.* Winship's Refrigerators, of two sizes, the smaller admirably adapted to family use, and the larger for provision dealers, hotels, &c. *Bronze Medal.*

431. Darius Eddy, *Dorchester, Mass.* Two Refrigerators. Similar in principle to the above, (No. 22,) with the addition of a filter for the melted ice-water, and apparatus for drawing it off for use. *Bronze Medal.*

532. Geo. Lane, *Agent, Boston.* Two Bartlett's Polar Refrigerators. Good and well-constructed articles. *Bronze Medal.*

112. S. Harnden, *Reading, Mass.* Two Refrigerators, (Schooley's Patent.) One of these is large, intended for the use of provision dealers, &c., and the other small, for hotel or family use. These refrigerators are constructed upon truly scientific principles, and combine in the highest degree all the qualities of a perfect preserver. It is so constructed as to secure a constant circulation of *pure, dry,* and *cool air* through the provision

chamber. The ice is placed above or upon either side, in a separate chamber. These refrigerators are entitled to the highest commendation and a *Silver Medal.*

35. J. Gault, *Boston.* Five-Minute Boiler. Useful.

271. W. B. Wadman, *Boston.* Sheet-iron Coal Sifter. A good and safe article constructed entirely of iron.

42. Cram & Norris, *Boston.* Patent *Folding* Clothes Dryers, Skirt Boards, Bedsteads, Chairs, Settees, Campstools, &c. All ingenious, compact, and useful inventions. *Bronze Medal.*

50 Charles O. Gale, *Boston.* Patent Elevating and Folding Clothes Dryer. This is a revolving Apparatus, capable of spreading a large number of pieces at a time, and occupies but a small space. It is easily removed and sheltered when not in use, and possesses many advantages over any other apparatus of the kind on exhibition. *Bronze Medal.*

79. John Hebden, *Medford, Mass.* Patent Washing, Wringing, and Mangling Machine. An ingenious and useful invention. *Bronze Medal.*

181. Royce & Co. *Winchendon, Mass.* Clothes Frame. Useful and of small cost. *Diploma.*

281. Spence & Co. *Boston.* Walker's Self-operating Table Leaf Supporter. A neat little invention.

281. *Same.* Mumford & Wilson's Patent Washing Machine, (Rotating.) Is a cheap, compact, useful, and an ingenious invention. *Bronze Medal.*

160. Sylvanus Walker, *Inventor, by* Spence & Co., *Boston.* Patent Egg Beater. Useful and neat in its operation.

621. John W. Hight, *Boston.* Patent Leaf Supporter. A small but useful invention.

351. E. P. Munroe, *Charlestown, Mass.* Stand of Egg Whips, or Egg Beaters. An ingenious and useful invention, superior to all others of the kind on exhibition. *Bronze Medal.*

866. J. S. Peasley, *Providence, R. I.* Washing Machine. This machine is operated in a manner unlike any other, and the principle, although not new, is novel in its application. *Bronze Medal.*

337. Kendall P. Saunders, *Boston.* Willow Ware. A variety of useful articles, all well made, and some of elegant finish. *Diploma.*

363. Kent & Smith, *Boston.* Water-closet Apparatus. Very good. *Diploma.*

379. Bridgeman & Peabody. One Dozen Clothes Lines (12 threaded). Of good material and well manufactured.

413. B. T. Currier, *Boston.* A Press for pressing Corned Beef. The only one on exhibition, a useful invention.

426. D. F. Eddy, *Boston.* Closet Steps. Useful and compact.

307. Cowing & Co., *N. Y.*, *by* Wm. Mills, *Boston.* Protection Engine For garden, washing windows, and a variety of other purposes. A good and efficient machine, compact, light, and useful, also reasonable in price. *Bronze Medal.*

434. John Contrell, *New York.* Double-acting Washing Tub. Possessing many advantages over some others. *Diploma.*

620. John Mears, *South Abington, Mass.* Washing and Clothes-wringing Machine. Useful, simple, and effective. *Bronze Medal.*

645. Johonnot & Saunders, *Boston.* Case of Tripoli and Brickdust. Excellent articles. *Diploma.*

628. H. E. Smith, *Philadelphia.* Union Washing Machine. This machine claims to be a superior article, simple in construction and operation, having a wringer attached. *Diploma.*

667. Robert K. Snow, *Chelsea.* Clothes Dryer. This has a double row of arms, and is somewhat complex in its construction and operation. *Diploma.*

307. William Mills, *Boston*, Water-closet Apparatus, Bath Tub, &c. All of the best style of manufacture and finish, with several useful and ornamental improvements introduced. *Bronze Medal.*

508. E. Harrington, *Boston.* Copper Coffee Urn. A superior article, well got up. *Diploma.*

262. Eben S. Coffin, *Boston.* Improved Washing Machine. *Diploma.*

32. C. W. Sayles, *North Wrentham, Mass.* Bailey's Patent Washing, Starching, and Wringing Machine. *Bronze Medal.*

775. Brannegan & Cuddy, *Boston*, *by* Whitney Brothers. Glass Shades. Clear and brillant material. *Bronze Medal.*

948. Nichols & Cushing, *Boston.* Anti-Molasses Dripper. Ingenious and useful little affair. *Diploma.*

595. D. Goodnow, *Boston.* Brackett's Patent Knive and Fork Cleaner. Useful. *Diploma.*

597. N. H. Ricker, *Boston.* Patent Door Fender. A good article for the purpose.

695. Wm. Heath, *Bath, Maine.* Flatiron Heaters. *Diploma.*

855. W. & B. DOUGLASS, *Middletown, Conn.*, *by* NOURSE, MASON, & Co. *Boston.* Garden Syringe or Window Washer. *Diploma.*

907. TUTTLE & MUDGE, *Boston.* Coal Forks. A useful article.

358. HENRY J. HUNT, *Boston.* Sample Cans, Tin Work, &c. All good specimens of workmanship. *Bronze Medal.*

975. BRADLEY & SHAVER, *New Haven, Conn.* Patent Egg Fork and Holders. Ingenious. *Diploma.*

996. F. ASHLEY, *N. Y.*, *by* G. H. SAVERY. Screw Egg-Beater. *Diploma.*

CABINET FURNITURE AND UPHOLSTERY.

J. E. HAZELTON, EDWARD LAWRENCE,
CHARLES M. KIMBALL, *Judges.*

The Committee have carefully examined the articles embraced in their Commission, and now submit their report thereon.

837. MILLARD & KNOWLES, *Providence, R. I.* Richardson's Patent Rosewood Burial Casket. Beautiful, and in good taste. *Diploma.*

1068. BENJAMIN R. MITCHELL, *Kingston, Mass.* Sylvan Chamber Set. This style of furniture is novel, and it exhibits great skill in reducing so unpromising a material into such beautiful articles. They are however rather curious and ornamental than useful. *Bronze Medal.*

1119. J. KORNILOWICZ & Co., *Roxbury.* Ladies' Work Table. A very neat and beautiful piece of workmanship. *Diploma.*

1120. FREDERICK HINZ, *Roxbury.* Two Marble-top Tables. Good articles. *Diploma.*

1162. JUSTIN WHITNEY, *Boston.* Inlaid Centre Table. A good specimen of this kind of work.

1202. TERRY & WELLS, *New York.* Three Reception Rocking Chairs. A new invention, of good workmanship, and deserving consideration. *Bronze Medal.*

1227. GEO. H. SMITH, *Waltham, Mass.* Specimen of Jig Sawing, Table-work, &c. A very good specimen. *Diploma.*

1240. MRS. M. S. SMITH, *Chelsea, Mass.* Imitation inlaid Table. A good article.

1242. S. F. BROOKS, *Boston.* Ottoman Cradle, Game Box and Mirror. A very neat and tasty contrivance. *Diploma.*

1253. S. D. WOODBURY, *Lynn, Mass.* Combined Extension Bed and Chair. A good article. *Silver Medal.*

1312. Joel M. Holden, *Boston.* Carved Table Top. A good specimen. *Diploma.*

1275. Eaton, Jones, & Co., *Boston.* Swing Cradle. Good fair article. *Diploma.*

1276. Blake & Davenport, *Boston.* Carved Sideboard. Etage French Cabinet and Three Chairs. Good, well-finished articles. *Silver Medal.*

1299. John Putnam, *Boston.* Beadstead, Spring Bed, and Mattress. *Diploma.*

1300. Doctor A. Wood, *Dighton, Mass.* Two Rustic Chairs, very pretty. *Diploma.*

1321. Amasa W. Bailey, *Boston.* Billiard Table. One of the best finished articles examined by the Committee. *Silver Medal.*

1324. Pettingill & Pear, *Boston.* Three of Hawes's Patent Spring Beds. A very good article. *Bronze Medal.*

1358. H. R. & J. L. Plimpton, *Boston.* Combination Cabinet Bedstead. A very ingenious arrangement, furnishing complete accommodations for a sleeping-room, and still a beautiful piece of furniture for a parlor. Simple in its construction, not liable to be put out of order, and withal a very tasteful and elegant article. *Silver Medal.*

1386. John Holman & Co., *Boston.* Two Mattresses and eight Pillows. Fair articles.

1422. Henry A. Turner & Co., *Boston.* Invoice Furniture, Sideboard, Bedstead, Chairs, &c. Elegant workmanship, fine carving, and perfect finish. *Silver Medal.*

1468. James Finn, *Boston.* Inlaid Marble Centre Table. A good, neat, and pretty article. *Diploma.*

1471. W. R. Bennett & Co., *Boston.* Two Japan inlaid Tables. One table Japanning on Glass. Excellent workmanship, and equal to the imported articles of the kind. *Bronze Medal.*

1497. Beal & Hooper, *Boston.* Lents' Spring Bed and Lents' Spiral Springs. This bed is a low priced but excellent bed. The Spiral Springs are superior, not excelled by any. *Diploma.*

1502. Edwin A. Smallwood, *Boston.* Bed Lounge and Carved Work Chair. Good articles. The carving on the chair excellent, and the lounge of fine workmanship. *Bronze Medal.*

1528. H. P. Kendrick, *Boston.* Tucker's Spring Bed. Good bed. *Diploma.*

1534. E. **Whitney** & Co., *Lynn, Mass.* Combined Chamber Set. Good article.

1537. **Pearson** & **Danforth**, *Boston.* Patent Cabinet Chair, Combined Sofa and Spring Bed. Very good and useful piece of furniture, particularly desirable for invalids. *Silver Medal.*

1549. R. F. **Billings**, *Portland, Me.* Portable Spring Box Bed Bottom. A fair article.

1559. A. **Eliaers**, *Boston.* Patent Extending and Reclining and Library Chairs. This article sustains the character given at a previous exhibition. *Bronze Medal.*

1591. L. L. **Tarbell**, *Boston.* Black Walnut Casket. A well-finished, good article. *Diploma.*

1600. **Gilman Joslin**, *Boston.* Improved Library Table. A superior article, and of great utility. *Diploma.*

1609. A. **Adamson**, *Boston.* Imitation Rosewood Piano Top. Fair article.

1641. **Black**, **Gramm**, & Co., *Boston.* Three Looking Glass Frames and Oval Frames, of superior workmanship and finish. *Bronze Medal.*

1649. **Nathan** C. **Page** & Co., *North Weare, N. H.* Improved Adjustable Patent School Desk. Fair article.

CARPETS, RUGS, AND FLOOR CLOTHS.

Hugh M. Currier, **Frederick B. Wentworth**,
Judges.

Your Committee have examined with care the articles contributed for the Ninth Exhibition, which were submitted to their inspection and judgment. As a whole, they are very much below the standard of articles in that line which have heretofore been contributed. They were disappointed in not finding carpets from the Lowell Company, Hartford Company, and Bigelow Company Mills, thereby giving them an opportunity to contrast the different make of goods of the same denomination.

1578. G. H. **Wood** & **Phillips**, *Agents, Boston.* Five rolls Ingrain Carpeting, from Tapley's Mill at Danvers. They are very good of the kind, but seem to require a little better finish to make them worthy of particular mention.

1127. **Roxbury Carpet Company**, by M. H. **Simpson**, *Agent, Boston.*

Three rolls Brussels Carpeting and five rolls Tapestry Carpeting. These goods are of medium quality, and compare favorably with others of American manufacture, notwithstanding slight imperfections in the weaving and coloring, which we hope to soon see remedied.

1108. MRS. J. A. LEROW, *Fitchburg, Mass.* A roll of Braided Stair Carpet. It is a very neat piece of work, and deserves a favorable notice, both as a good specimen of work and a useful application of worn household stuffs, which too often are thrown by as useless. Your Committee recommend a *Diploma.*

1191. A Carpet made by MARIA T. PERKINS, *Marblehead, Mass.* A roll of Rag Carpeting, made by her, of the military clothing worn by her father and brothers during the war of 1812. It is a very useful application of cast-away clothing, and a credit to her industry, and your Committee would recommend that she receive a *Diploma.*

1520. STICKNEY & PAGE, by GEO. W. CHIPMAN & Co., *Boston.* Rolls of Painted Floor Cloths. They are very good specimens of their manufacture.

1544. D. & J. BOGLE, *West Newton, Mass.* Rolls of Painted Floor Cloths and one Rug. The quality is good, and they are very well painted and well dried, which is essential to their durability.

Diploma.

1519. NEW YORK CARPET LINING CO. *by* B. C. EVANS, *Agent, Boston.* Carpet Lining, a comparatively new article, and one which in some cases may be useful.

1572. PATRICK LYMAN, *Lexington, Mass.* Coir and Manilla Mats. A fair specimen. The Committee do not discover any particular merit in the material or manufacture.

PAPER HANGINGS.

CHAS. EDWARD COOK, EBEN H. HITCHINGS,
GEORGE GOLDTHWAIT, JAMES A. D. WORCESTER,
Judges.

The Committee regret that there was not a larger display of goods in this department; — two lots only were exhibited.

931. HOWELL & BROTHER, *Philadelphia, by* CHAS. E. WIGGIN, *Boston.* Gold and Cloth Decorations, and Borders, and Embroidered Gold Papers. The Embroidered Gold Papers are a new article, having been made in this

country only about two years, and are a great improvement on the old method of applying the Gold, but as the improvement did not originate with the contributors, and as the samples exhibited are not better than may be found in many of the stores of our city, the Committee can only recommend a *Diploma.*

968. WESTERBURG, JEFFERSON, & Co., *New York.* Mouldings, Cornices, Cloth and Gold Decorations, Oak Decorations, Oak and Marble Papers. *Diploma.*

GLASS, EARTHEN, AND STONE WARE.

D. B. STEDMAN, JOSEPH SMITH,
W. MATTHEWS, JR., *Judges.*

Your Committee have carefully examined the articles upon their list, and find them divided into three classes, Glass, Earthen, and Stone Ware.

896. NEW ENGLAND GLASS COMPANY, *Boston.* This well-known Company have contributed a very well-selected assortment of Glass Ware. The Salvers, Bowls, Decanters, Goblets, Wines, Pitchers, and Dishes of Cut Glass, some of which are new and elegant patterns, of symmetrical and well-proportioned forms, are specimens of the art, both of manufacturing and cutting, such as the Committee have never seen surpassed.

The brilliancy and uniformity of color of the glass of this Company deserve special recommendation.

Plated Ware, of a great variety of colors, cut in tasteful and splendid patterns, showing the different colored glass of which the same article is composed, to great advantage, is somewhat largely contributed, and is really deserving of attention, being such as is rarely equalled by any specimens, either domestic or imported.

This Company have also produced some superior specimens of *Silvered* Ware, which deserve particular notice. This style of silvering Glass Ware is comparatively new, but it appears to have been brought to great perfection by the New England Glass Co. They have also contributed some very excellent specimens of Pressed Glass. The Decanters, Pitchers, and Bowls are of superior workmanship, to which the Committee would call particular attention.

Such articles as Decanters, Lamps, &c., which are narrower at the top than at the bottom, and which a few years since it was considered impossible to press, are now pressed with great facility, producing very fine articles, which would astonish manufacturers of twenty years ago who have not kept pace with the progress of the art of pressing glass. *Silver Medal.*

409. **Plympton & Robinson**, *East Boston*. Earthen Ware. We find style, quality, and finish of glazing, good. This ware compares well with the Bennington ware. *Bronze Medal.*

483. **David D. Wells**, *Boston*. Stone Ware. Manufactured by J. Norton, Bennington, Vt. We find it to be of as good quality as any of this kind of ware manufactured in New England. *Diploma.*

SILVER AND PLATED WARE, CLOCKS, AND WATCHES.

Z. A. Willard, George E. Adams,
N. C. Poor, *Judges.*

The Committee having completed the examination of the articles in their department, herewith present their report.

Silver and Plated Ware.

172. **Amos D. Carleton**, *Boston*. Case of Plated Ware, Door Plates, Numbers, &c. Very well finished, especially the plain work, and deserving of a *Diploma.*

216. **Roswell Gleason & Sons**, *Dorchester*. Case of Plated Ware. The Committee understand that the patterns of these goods were designed and made, and the plating done, on their own premises, by the Messrs. Gleason, and recommend for variety, finish, and general excellence, a *Silver Medal.*

329. **George Hastings**, *Waltham, Mass.* Case of Gold and Steel Watch Hands. Very creditable specimens of work, especially the Solid Steel Seconds Hands. Deserving of a *Diploma.*

466. **Chas. H. Crane**, *Dorchester*. Case of Plain and Ornamented Spoon Holders. *Diploma.*

606. **Willard Farrington**, *Boston*. Samples of Silver Ware. *Diploma.*

704. **John Torsleff**, *Boston*. Case of German Silver Plated Ware. For style and finish deserving a *Bronze Medal.*

768. **Andrew Peterson**, *Boston*. Case of Plated Goods. The goods in this case are deserving of especial notice for beauty of design, excellence of finish, and richness of style. *Silver Medal.*

776 and 867. **Henry B. Stanwood & Co.**, *Boston*. Two Cases Silver Ware, Jewelry, Watches, &c. For the designs of Silver Ware, which are the especial property of the Messrs. Stanwood, *Bronze Medal.*

942. Crosby, Hunnewell, & Morse, *Boston*. Case of Silver Ware and Jewelry. The Committee would pass especial commendation upon the Diamond and Pearl Jewelry in this collection, which they understand to be the work of one of the partners in the above firm. A diamond, pearl, and sapphire necklace can hardly be surpassed for elegance of design and beauty and perfection of workmanship.

Diamond Cross and Rings, Pearl Cross, Diamond and Pearl Bracelet, are in the highest degree creditable to the taste and skill of Boston artists and mechanics.

In the opinion of the Committee, this collection of Jewelry is deserving of a *Silver Medal.*

Also a collection of Silver Ware. For the beauty and originality of design, together with excellence of workmanship, a *Silver Medal.*

Watches and Clocks.

In approaching the subject of Watches and Clocks, the Committee find themselves placed in a position of some perplexity and difficulty. They are called upon to pass judgment not only upon the finish and general excellence of the articles presented, but also to dispose of certain claims to inventions, improvements, and novelties in both departments of the art of horology. And, while the Committee are desirous of admitting to the fullest extent the pretensions of the inventors, they still feel they should not be doing justice to themselves, or to the Association, if they neglected to notice the previous claims of the early horologists.

It has been the misfortune of horology that the art has had no historian. Each watchmaker has to instruct himself. The success of each generation of watchmakers is recorded in its works, but the experiments and *failures* by which the successes were achieved have had no record, and consequently each succeeding generation takes up the art not where its predecessor left it, but where it *began*, and follows out the same train of experiment and failure.

It not unfrequently happens that an improvement is tried, patented, adopted, and *discarded after long trial*, only to be *reinvented* by the succeeding generation, in perfect good faith, to be abandoned and revived again.

The Committee would state that many things are brought to their notice which cannot be reported upon except after a series of delicate, careful, and tedious trials, too lengthy to be attempted within the limits of the duration of the Exhibition, and they have, therefore, confined their report to the subjects of previous inventions, actual improvements, and quality, and finish of work.

These few prefatory remarks, the Committee deem necessary in explanation of the criticisms and awards which follow.

504 and 879. Turret and Marine Clock Co., *Boston*. A Turret Clock, containing a number of inventions and improvements of A. D. Crane, and called "Crane's Patent Escapement Tower Clock."

This Escapement has the Remontoir action, which was a favorite idea with early clock and watch makers, who believed that perfection of time was attainable only by means of a Remontoir. It has been abandoned for many years. An escapement in all its essential principles the same as Mr. Crane's was constructed by the celebrated John Harrison, about the year 1730, and the clock is now running in the rooms of the Royal Society of Arts and Sciences in London. Crane's Escapement requires no oil, but Harrison's whole clock required no oil on any part of it.

2. A claim for an improvement by which the hands of the clock may be detached and taken up again by the automatic action of the clock without assistance. To be used in case the hands are obstructed by ice in winter.

3. An attachment by which any number of dials in all parts of a building may be connected with the main clock, and all keep time coincident with it.

4. An Improved Striking Arrangement.

For the duplicate dial attachment, which is very meritorious, the *Executive Committee* award a *Silver Medal.*

665 and 827. E. Howard & Co., *Roxbury*. One Tower Clock, three Astronomical Clocks, Timepieces, Marble Clocks, and Watches, by E. Howard & Co., Roxbury. The Tower Clock has the ordinary dead-beat escapement, but with a very meritorious improvement for setting the hands; also, improvement in the striking apparatus and wire cord, instead of chain or hemp rope.

2. Astronomical Clock with "Patent Knee-joint Escapement." After careful examination, the Committee cannot see any improvement in this over the ordinary dead-beat escapement, but for general excellence of work, would suggest the award of a *Bronze Medal.*

Same. Case of Watches, Watch Movements, and parts of Watches. The Committee are given to understand that these watches are made entirely in this country except the *ruby pins* and hairspring wire, which are imported. When it is remembered that the enterprise of Watch Making is very recent in this country, and that in the beginning a great many parts, such as mainsprings, hairsprings, dials, balances, diamond caps, pinions, &c., &c., &c., were imported, the progress of the art will be appreciated, and the Committee can truly congratulate the contributors on the marked improvement in the quality of the watches exhibited this year over their early production. The balances, hairsprings, and pinions (the latter cut from solid steel) are especially creditable.

The Committee recommend the award for general excellence of work and superior finish, of a *Silver Medal.*

831 and 832. Geo. P. Reed, *Roxbury.* Novelties in Watchmaking and inventions. These inventions are —

1. A Compensation Balance.
2. A New Detached Escapement.
3. A New and simple form of an Independent Seconds Watch, with day of the week and month on same arbor.
4. A Revolving Lever Escapement, with inclined balance.

These four are in the opinion of the Committee of doubtful value.

5. An Arrangement of the Coils of the Hairspring, either flat or helical, by which a more perfect adjustment in isochronism is *said* to be obtained.

As substantially the same thing has been applied in New York, London, and Geneva, it can hardly be called an invention, and as to test its value as an improvement would occupy a very long period, the Committee decline to decide upon it.

6. Reed's Combination Attachment applied to the winding arbor, being a stationary barrel, going wheel, detent work, stopwork, &c.

The idea is evidently taken from the Swiss music-box barrel, but the combination is exceedingly meritorious and ingenious. Allowing the widest and longest possible mainspring, relieving the train from all danger of damage by the breaking of the spring, and thereby facilitating the use of high numbers of wheels and pinions, the placing of the stopwork on the bridge above the wheel, securing the train from all danger by careless winding, the use of the maintaining power, — these and other more technical advantages seem to place this improvement strongly before the Committee ; and they are of the opinion that if anything which is not strictly an invention is worthy of a Gold Medal, this is. It is an improvement so decidedly meritorious, and for the purpose of remedying the dangers above named so necessary, that the Committee advise the award of a *Gold Medal.*

861. American Watch Co., *Waltham, Mass.* Case of Watches, Watch Movements, and parts of Watches, contributed by the American Watch Company.

1. Patent Chronodrometer or Horse-timing Watch, said to be capable of being started or stopped within ¼ of a second.

As it did not appear to be in going condition, the Committee could not report upon it.

2. Models of Dennison's Patent Application of a Cylindrical Spring to a whole plate watch without increasing the thickness. The Committee cannot see any advantage to be derived from this arrangement.

3. Movement presented for general good quality and principle, and for the adjustments to heat and cold, and isochronism, done by Mr. George E. Porter, one of the Company. A very creditable piece of work as regards finish, and doubtless correct in its adjustments, but the Committee had not time to test it.

4. "Movement exhibiting Dennison's Improved Lever Escapement, which claims peculiar merit in consequence of the impulse plane being entirely on the scape-wheel teeth, (and not on the pallet jewels,) thereby admitting of the flanges of the pallets being at equal distances from the centre of motion of said pallets, and producing, in the action of the escapement, that free and easy motion which the cylinder escapement is known to possess."

In commenting upon this improvement, the Committee would state that the same thing has been applied, both in England and Switzerland, and also in this country, and abandoned for reasons to the Committee unknown, but probably for lack of practical advantage; and in the present instance time can only decide on its claims to excellence.

Also connected with the above movement is a winding barrel, disconnected from main wheel, application of ratchet to outside of barrel and cylinder stopwork, all, in the opinion of the Committee, improvements on the usual style of winding of *these watches.*

5. Dials exhibited for quality, and approved of very highly by the Committee as being very fine specimens of work.

6. Fitts's Patent Reversible Centre Pinion for preventing damage to the train by breaking of the mainspring.

The centre pinion, instead of being firmly riveted to the wheel, is secured to a ratchet, which plays free in the wheel in one direction, and stops by a click in the other. Recommended to notice on account of not increasing the thickness of the watch.

In the opinion of the Committee a questionable advantage, as it produces an unsteadiness where there is necessity for the greatest firmness.

For the superior quality of the dials, and for the general fairness of the work, as compared with the price, the Committee recommend the award of a *Bronze Medal.*

25. ANDREW W. MITCHELL, *East Douglas, Maine.* A thirty-day Clock, telling the day of the week, month, &c. In the opinion of the Committee, it is too complicated for practical use.

MANUFACTURES OF SILK, COTTON, WOOL, AND FLAX, LIGHT FABRICS.

Samuel H. Gookin,
Eben. D. Jordan,
James C. Converse,
William Munroe,
Judges.

The Committee to whom was confided the examination of articles composed of cotton, silk, or flax, beg leave to report.

1432. Bates Manufacturing Co., *Lewiston, Me.*, *by* F. Skinner & Co., *Boston.* Specimens of Fancy Cottonades are found to be of superior make, showing good manufacturing, good dyeing, and generally good taste in design. The influence of this class of goods, when of superior quality and moderate cost, is to check the importation of fabrics for men's wear, and consequently is of great importance to our identical interests.

The Committee are unanimously of the opinion that the Bates Manufacturing Company are clearly entitled, for "Superior Fancy Cottonades," to a *Silver Medal.*

1423. Waltham Bleachery, *Waltham, Mass.*, *by* J. W. Paige & Co., *Boston.* Specimens of Wide Pillow-case Cottons from the Barton Manufacturing Company show the well-maintained excellence of the goods of this Company, and, particularly for superior bleaching, are entitled to the Society's *Diploma.*

1577. Lowell Bleachery, *Lowell, Mass.*, *by* F. P. Appleton, *Agent, Boston.* Specimens of Dyeing and Finishing Bleachery. Your Committee commend these specimens as showing an advance in the art of dyeing and finishing. The colors generally are of pure and decided tone, and the finish of superior excellence, and we award, for excellence in dyeing and finishing cotton fabrics, *Bronze Medal.*

1614. Willimantic Linen Co., *Willimantic, Conn.*, *by* F. D. Ellis & Co., *Agents, Boston.* Specimens of White and Colored Spool Cotton. Your Committee are impressed with the importance of producing a spool cotton of a quality worthy to take the place of the imported article. The specimens exhibited by this Company, show that they can produce a spool cotton equal in quality and at a less cost than the foreign article, and in view of this fact, while almost disposed to advise a gold medal, do not hesitate to award the highest encomium, and to recommend, for Spool Cotton of great superiority, *Silver Medal.*

1265. E. J. W. Morse & Co., *South Easton, Mass.* Sea Island Sewing Cotton. This is of excellent quality, good finish, and strength, and entitled to a *Diploma.*

1185. **Messinger & Brother,** *Boston.* A specimen case of Sewing Silk. This is entitled to favorable notice, and, as "superior Sewing Silk," to a *Diploma.*

Your Committee cannot close this report without expressing their regret that the manufactories of New England have not been better represented by specimens of their productions. The poverty of the Exhibition in this department in no degree arises from a want of products of a new character, nor for want of improvements in such as have been long manufactured; on the contrary, never in the history of manufacturing in New England has there been a period when the progress in the art of manufacturing and design, as applied to textile fabrics, could have been so clearly manifested as at this recurrence of your Exhibition; nor do your Committee believe that indifference to the exertions of your Society has been an influencing cause of what we regret.

The failure of manufacturers to avail themselves of this opportunity to present their productions before the community in friendly competition, is too evident and undeniable to permit of any other explanation than that of an unusual activity in producing for an urgent demand, and but little stock from which to make good selections for exhibition.

Your Committee ought, perhaps, to make the suggestion that more ample space and a better light for showing fancy textile fabrics would doubtless result in inducing the exhibition of many of the most interesting productions of New England, which now could not be exhibited with justice to the goods in the confined space and feeble light of the hall.

1095. **Webster Mills,** *by* **Converse, Harding, & Co.,** *Agents, Boston.* Webster Mill Bleached Cotton Shirting. These we find to be superior goods in fineness of quality and perfection of manufacture.

This is a class of goods comparatively neglected by New England manufacturers, and those now offered are, in the opinion of the *three* members of your Committee who by your regulations can alone make an award, deserving a *Diploma.*

MANUFACTURED WOOL.

Heavy Fabrics.

John Gardner, L. A. Huntington,
Johnson C. Burrage. William E. James,
Noble H. Hill, *Judges.*

There is a meagre display of goods ranging under this head. Of the large number of woollen mills in New England, producing a great variety of goods, including silk mixtures, doeskins, cassimeres, and fancy styles of all descriptions, for men's apparel, and plain and fancy cloakings for ladies' wear, — only two mills have sent samples to this Exhibition. At no former period could a collection of manufactured woollens have been made doing equal credit to the manufacturing skill of New England, and showing the great advances in this line of industry. In competing for our home markets against foreign imports, they have met with marked success. For this description of goods, no one need to inquire for German, French, or English fabrics, as many may find themselves clad in a suit made from American manufactures, while they wish to believe that they wear nothing but the best goods imported from Europe. Great advantages have resulted to the manufacturers by the Tariff of 1857 giving them a fair chance to obtain supplies of raw materials from other countries. Many kinds of foreign wools are now mixed with our American fleece, which improves the quality and equalizes the cost. The Judges on manufactured wool regret that the samples presented should be so limited in number. This may be owing in part to the fact that they have no occasion at this time to call public attention to the superiority of their goods, as all they can produce are disposed of as soon as finished, — and partly for the reason that the place allotted for the exhibition of woollen goods is insufficient for their proper display and examination. The floor of Faneuil Hall would not be too large to accommodate the cotton and woollen and printed goods that would be presented, if adequate room were offered.

1374. WASHINGTON MILLS, *Lawrence, Mass.*, *by* E. R. MUDGE, & Co., *Agents*, *Boston*. Six pieces black cotton-warp broadcloth, medium quality for general use, various styles of weaving, plain, twilled, and trical. Heavy beaver cloths, and navy blue, fine flannel coating. These goods do credit to the manufacturers. The cotton warps have a good finish and high lustre. *Silver Medal.*

Fine specimens of Sackings, Zephyr Cloth, Cashmeret, good weight and superior finish, and several pieces of mixed colors, very well done and entitled to a *Diploma.*

Three Balmoral Skirts, got up in very good style, and a variety of colors, equal to anything of foreign make. *Silver Medal.*

There are no other goods on exhibition of the same description as the above.

Specimens of long and square Plaid Shawls, superior colors, finish, and style. Honeycomb, and gentlemen's shawls, very good style and well manufactured. *Silver Medal.*

Plaid and striped Cloakings, a new fabric, got up with good taste, and desirable for ladies's cloaks. Also Opera Flannels, superior colors and finish, a creditable specimen of goods. *Diploma.*

A few samples of Printed Table Covers, an excellent article for general use.

1224. R. W. ROBINSON, *Dexter, Maine, by* DALE BROTHERS, & Co., *Boston.* Two Cases of Goods from the Dexter Mills, consisting of Plain and Fancy Plaid Silk Mixtures, or Codringtons, and Drab and White, and Black and White Check Cassimeres, good style and well manufactured, and one piece of Oxford Mixed Doeskin, of superior style and finish. *Silver Medal.*

No other goods of the above styles exhibited.

Same. Royal Stuart Plaids and Black Tweed Repellants, both superior to anything on exhibition. *Diploma.*

1156. CHARLES A. STEVENS, *Ware, Mass.*, by DALE BROTHERS & Co., *Boston.* Two pieces all-wool 4-4 White Flannels. Two pieces Silk Warp White Flannels. These Flannels have a superior finish; the bleaching is done so as to give them a peculiarly rich cream white. The silk warps are manufactured in a manner superior to any other Flannels on exhibition, and the Judges recommend a *Gold Medal.*

1233. BALLARD VALE COMPANY, *Ballard Vale, Mass.* All-wool Flannels, excellent specimens, well manufactured, and very well bleached. Also, Opera Flannels, beautiful colors, well manufactured and well finished. *Silver Medal.*

Two pieces Silk Warp Flannels. Very well made and do great credit to manufacturers.

1429. WATERLOO WOOLLEN Co., *Waterloo, N. Y., by* ALMY, PATTERSON, & Co., *Agents, Boston.* Samples of Waterloo Shawls. Couronne fancy stripe, and honeycomb, rather new styles of weaving, and a useful article for general use.

Fancy Long and Square Shawls, representing a great variety of excellent qualities, and superior style and finish, woven on the Crompton Fancy Loom, with jacquard attachments, and among the samples are some with printed yarns mixed with great skill and producing a fine effect. These styles have been produced in this country mostly by hand-weaving, and credit is due to the skilful manufacturer, Mr. C. W. Cooke, for introducing these improvements. The Judges recommend a *Gold Medal.*

1429. ALMY, PATTERSON, & Co. also present from the UNION FELTING COMPANY, very good specimens of black, blue, and brown Petersham Feltings, and Beaver Felting Cloth. These goods stand alone in the market, and have received a high premium before.

1019. John C. Morse, *Boston.* Yarns of his own make, well manufactured, good colors and fine qualities. *Silver Medal.*

Also, a variety of Hosiery, which do credit to the manufacturer, a *Bronze Medal.*

1413. Lewis Coleman & Co., *Boston.* Specimens of Hosiery, superior stock and finish. *Silver Medal.*

Also excellent specimens of Woollen Yarn. *Diploma.*

1460. Lombard & Brown, *Boston.* A Case of Knitting Yarn, very well manufactured and entitled to a *Diploma.*

1408. Messrs. Chase & Shorey, *Boston.* Good specimens of Woollen Yarns and Hosiery. *Diploma.*

Also, specimens of Woollen Drawers and Shirts, the only goods of the kind on exhibition. *Diploma.*

1054. W. & J. Mercer, *Cornish, N. H.* Four Bundles of White Woollen Yarn, manufactured from very fine stock, and the finest yarn on exhibition, not spun as evenly as some other yarns, but entitled to a *Bronze Medal.*

1048. Peace Dale Manufacturing Company, *Rhode Island, by* E. C. Dyer & Co., *Boston.* A variety of Gentlemen's Shawls, a desirable article, which do credit to the manufacturers, and deserve a favorable notice. *Diploma.*

1428. Norway Plains Company, *Rochester, N. H., by* Chase, Wheelwright & Co., Boston. Blankets manufactured by the Norway Plains Company. Twilled and Plain Bed Blankets, got up in good style, with Fancy Headings; fine stock, and well finished. *Silver Medal.*

CLOTHING AND FURNISHING GOODS.

Charles A. Smith, Charles A. Hewins,
Isaac Cushing, *Judges.*

The Committee on *Clothing and Furnishing Goods* have examined the different articles in their department as carefully as their limited time has permitted. It has seemed to them that, in the comparison of competing articles, the points to be considered were the following : —

1. Materials.
2. Workmanship.
3. Style, which depends upon the experience and skill of the designer; upon the taste displayed in the adaptation of materials; in the selection of

colors, and their proper arrangement; and finally, upon a prompt rejection of all painful elaboration in workmanship, or attempted ornament that serves no useful purpose.

1416. Jacobs & Deane, *Boston.* Case of Clothing. This case contains garments of different kinds, well designed, and made of the very best materials, evidently selected with judgment and good taste. *Diploma.*

1531. George N. Nichols, *Boston.* Case of Dressing Gowns and Breakfast Jackets. Displaying taste in the selection of materials and good workmanship.

1424. R. F. Leonard & Co., *Boston.* Two Reversible Coats, one Reversible Sack, Business Suit and Overcoat. The Reversible Coats remarkably well made, and very fine specimens of this kind of garment. *Diploma.*

1444. George A. Fenno, *Boston.* Boys' Clothing. A respectable display of the different sizes and styles adapted to boys' wear.

1458. E. F. Miller, Jr., *Boston.* Case Boys' Clothing. Very excellent specimens of clothing for small boys, designed in good taste, well cut, and very well made. *Diploma.*

1144. A. W. Pollard, *Boston.* Two Cases Masonic Regalia, Jewels, &c. Made of excellent materials, trimmed and decorated with taste, and made up in all respects like good work. *Diploma.*

1131. George W. Heard, *Boston.* Two Cases Shirts, Collars, Stocks, and Ties. Manufactured of good materials, carefully and skilfully cut, and nicely made. Some of the shirt fronts displayed a marvellous quantity of fine needlework. The best in the Exhibition. *Bronze Medal.*

1145. Bacon, Custis, & Co., *Boston.* Case Gents' Furnishing Goods. This case attracted much attention, — the articles being tastefully arranged on the sides of a tall, hexagonal pyramid, made to revolve by concealed machinery. *Diploma.*

1153. James P. Draper, *Boston.* Two Cases Shirts. Including a miniature garment, — one of a set made for the famous Gen. Tom Thumb. Creditable specimens. *Diploma.*

1400. James B. Macomber & Co., *Boston.* Case of Shirts. Well-made garments.

1516. Merriam, Sawyer, & Co. Case of Shirts, Collars, and Men's Furnishing Goods. "*For exhibition only.*"

1418. Wm. E. Lockwood, *Philadelphia.* Enamelled Collars and Cuffs. A large case filled with many different styles of Collars and Cuffs for both sexes. To those who have no prejudice in favor of "fine linen," these may be safely recommended. *Diploma.*

1466. **Henry A. Hall & Co.**, *Boston.* India Rubber Clothing. Water-proof garments of various kinds. Some of the coats are reversible, and may be worn so as to present the appearance of an India rubber garment, or of a light woollen, alpaca, or silk overcoat. Some are heavy and warm enough for the use of coachmen and pilots in the sleet and rain of winter; and others so light that they may be worn with comfort in a summer shower. There is evidently a great improvement in style and fit, and the Committee consider them the best India rubber garments of American manufacture they have ever seen. *Diploma.*

1135. *Same.* Case of India Rubber Goods. A great variety of articles, showing the many uses to which this material is adapted, — many of them quite surprising, and all highly creditable. *Diploma.*

1245. **George W. Cutter & Co.**, *Boston.* Case of Plymouth Gloves. Well made, and very excellent goods.

1384. **T. R. Hawley & Co.**, *Boston.* Case of Gloves. Excellent goods. Some of the finer kinds are very well shaped, and fit quite as well as the best imported gloves.

787. **C. H. Torrey**, *Boston.* Tailors' Press. Simple, ingenious, and practical. The human arm suggested an iron arm with an elbow joint. Pressure to the desired amount is given by the foot, and the machine is understood at a glance. Decidedly the best press in use.
Bronze Medal.

916. **H. D. Walcot**, *Boston.* Walcot's Improved Button-hole Cutters. Very excellent instruments. By means of a graduated scale, button-holes may be cut of any required length. *Diploma.*

HATTERS' GOODS. HATS, CAPS, AND FURS.

Merrick R. Pollard,
Orel Towle,
Saml. O. Aborn,
Judges.

The exhibition of Hats and Furs is less extensive than on many former occasions, yet, all that are shown at this time are worthy of much commendation.

1000. **Geo. N. Bigelow**, *Boston.* One case of superior Moleskin

Hats, which exhibit judgment and skill in the selection of materials, and are of the most perfect work and finish. *Silver Medal.*

1158. A. N. Cook & Co., *Boston.* Two cases of Moleskin Hats, of excellent quality, which are also of superior workmanship, a *Bronze Medal.*

A. N. C. & Co. exhibited some soft Felt Hats of superior quality, and a "French Friar's Hat."

With their display were several hats, made "long time ago," which attracted much attention. One labelled 1828, should be 1833. The fashion of 1828, was a crown nine inches high, measuring ten inches across the top, the brim one and five eighths of an inch in front and rear, and one fourth of an inch wider at the sides, being the large top hat usually drawn in delineating the "real Yankee."

1141. Samuel Mason, *Boston.* Military, Naval, and Masonic Chapeaux, well manufactured and trimmed with fidelity and care. *Diploma.*

S. M. also exhibited some very fine Moleskin Hats.

1581. Walko & Barnum, *Boston.* Exhibited a superior display of Ladies' Furs; for one Siberian Sable suit, and one American suit, of excellent materials and best work, *Silver Medal.*

W. & B. also contributed some beautiful hats for ladies and children.

1000. Geo. N. Bigelow, *Boston.* A beautiful display of Ladies' Furs, one Russia Sable suit, and several American Sable ditto, and Squirrel Cloaks, of excellent materials and beautiful work, are worthy of much commendation. *Bronze Medal.*

1610. Weis & Zoebisch, *Boston.* One case of Ladies' Furs, containing Sable, Ermine, Mink, and Squirrel suits, well made; a fine display. *Diploma.*

1562. John P. Sawin & Co., *Boston.* One case of Misses and Youths Hats. *Diploma.*

1208. H. K. W. Hibbard, *Boston.* One case of Misses and Youths Hats.

1214. Stevens, Brothers, *Lawrence, Mass.*, presented by Charles Rice & Cook. One case of Felt Hats, which exhibit great improvement. *Diploma.*

UMBRELLAS, COMBS, HAIR WORK, AND FANCY ARTICLES.

WILLIAM E. ABBOT, D. F. IVES,
MATTHEW BINNEY, *Judges.*

1437. Miss H. A. BALL, *North Cambridge, Mass.* One frame of Hair Work. The Committee would say, that among such a variety of specimens, it has been very difficult to decide on the respective merits of each; but they have used their best judgment in the matter and endeavored to act impartially. This specimen they think is entitled to a *Diploma.*

1332. CALEB LARKIN, *Charlestown, Mass.* Backgammon Board. Fair, but not well finished.

1341. Miss EMMA M. LITCHFIELD, *Boston.* Frame Hair Work. Very neatly done.

1343. C. A. KILGREEN, *Quincy, Mass.* Backgammon Board. Very fine piece of work.

1344. SETH WINSLOW, *Charlestown, Mass.* Inlaid Chess Table. Well executed.

1464. CHRISTOPHER KIRMES, *Boston.* Case of Wigs. Superior workmanship. *Silver Medal.*

1473. HIRAM ANDREWS, *Salem, Mass.* Star Chequer Board, of seventy-eight kinds of wood, and composed of 188 pieces. (Great piece of labor.)

1348. Mrs. W. S. WEST, *Charlestown, Mass.* Basket of Wax Fruit. Good.

1359. Miss L. HOLBROOK, *Boston.* Frame Hair Work. *Diploma.*

1362. Mrs. A. J. KNOX, *Boston.* Frames of Preserved Flowers. *Diploma.*

1487. Mrs. L. MULLIKEN, *Boston.* Frame Hair Work, composed of the hair of 310 personal friends, very elaborate and beautiful. *Silver Medal.*

1505. Mrs. M. N. CUTLER, *Charlestown, Mass.* Frame Hair Work. *Diploma.*

1566. J. A. HUGHES & Co., *Boston.* Specimen Show Case. *Diploma.*

1557. JAMES PATTERSON & Co., *Boston.* Specimen Show Case. *Diploma.*

1582. Mrs. J. W. **Gibson**, *Boston*. Elastic Canvas Doll Heads. Think well of the material and work. *Diploma.*

1024. Miss B. A. **Wheeler**, *Cambridgeport, Mass.* Hair Wreath. *Diploma.*

1011. Miss H. A. **Valentine**, *Chelsea, Mass.* Frame Pressed Flowers, very good.

1028. Charles H. **Packer**, *Boston*. Leather Work Frame. Well executed.

1036. Miss E. M. **Squire**, *Boston*. Frame Hair Work and Preserved Funeral Flowers. *Diploma.*

1040. A. **Lewando**, *Boston*. Specimens of Fancy Coloring, Dyeing and Scouring. Very superior work, showing great perfection in the art. *Silver Medal.*

1045. Miss Ann K. **Strange**, *Boston*. Frame Hair Work. *Diploma.*

1082. Charles **Rackleff**, *Charlestown, Mass.* Model Chicago Zouave. *Diploma.*

1093. Mrs. M. E. **Tucker**, *Boston*. Vase Hair Work. *Diploma.*

1094. Miss A. S. **Pierce**, *Boston*. Vase Hair Work. *Diploma.*

1103. Mrs. N. E. **Little**, *Boston*. Two Frames Hair Work. *Diploma.*

1163. Miss L. A. **Snow**, *Roxbury, Mass.* Frame Hair Work. *Diploma.*

1164. Horatio N. **Jacobs**, *South Boston*. Lot of Furniture made by an invalid with a penknife. Remarkably well done, requiring great skill, labor, and patience. *Diploma.*

1174. John **O'Connor**, *Chelsea, Mass.* Inlaid Workbox. Fine piece of work.

1183. Miss N. J. **Sherman**, *Lowell, Mass.* Frame Hair Work. *Diploma.*

1063. Charles H. **Wiggin**, *Boston*. Model of Theatre Stage, by an invalid. *Diploma.*

1184. Mrs. George T. **Cutter**, *Medford, Mass.* Leather Work What-not. Very fanciful, but not desirable for use.

1200. Mrs. S. T. **Damon**, *Boston*. Shell Frames, Basket and Flowers, Frame Hair Work. Very tastefully arranged and requiring great patience in its execution. *Bronze Medal.*

1226. Miss Eleanor Hovey, *Woburn, Mass.* Frame Hair Work. *Diploma.*

1231½. J. F. Francis, *Roxbury, Mass.* Emblematical Frame. Fine piece of work. *Diploma.*

1366. Mrs. Benj. Richardson, *Boston.* Fancy Table. Very well done.

1285. C. F. Goodwin, *Boston.* Inlaid Writing Desk. Very elaborate piece of work. *Diploma.*

1381. A. W. Copp, *Charlestown, Mass.* Inlaid Workbox. Good workmanship and entitled to *Diploma.*

1307. F. H. Carney, *Boston.* Miniature Piano-forte. Very ingenious piece of work. *Bronze Medal.*

1405. Mrs. O. A. Newhall, *Malden, Mass.* Frame Hair Work Harp. Very large and elaborate. *Diploma.*

1406. Miss E. C. Barnes, *Boston.* Frame Hair Work. Remarkable for a child of eleven years.

1414. Miss Mary H. Rogers, *Boston.* Frame Hair Work. *Diploma.*

1638. Mrs. Wm. R. French, *Weymouth.* Frame Hair Work. *Diploma.*

1646. W. H. Richardson, *Philadelphia.* One Stand of Umbrellas, containing fifty-six different varieties. These Umbrellas are covered with gingham and silk, are well made; and the only Umbrellas contributed to the Exhibition. *Bronze Medal.*

601. A. L. Jewell, *Waltham, Mass.* Weather Vanes. In great variety and of superior workmanship. *Diploma.*

189. Nathan Greene, *by* O. D. Sawyer, *North Weare, N. H.* Case of Stuffed Birds. Very good. *Bronze Medal.*

68. E. W. Tarbell, *South Boston.* Model of No. 14 Engine. Very handsome and beautifully finished. *Diploma.*

69. Joseph Davis, *Boston.* Models of Ships. Very fine pieces of work and requiring much labor. *Diploma.*

115. Augustus H. Perry, *Salem, Mass.* Model Fire Engine. *Diploma.*

137. John Fisher, *East Boston.* Model Sloop. Well done.

203. J. B. Taylor, *Boston.* Model of Brig. Good for his age.

246. Bourguignon & Britt, *Boston.* Case Meerschaum Pipes and

Carved Ivory Cane Heads. Ivory carvings entitled to a *Diploma.*

250. M. JOYCE, *Boston.* Miniature Adams Press. *Diploma.*

263. FREDERICK L. P. & JULIAN A. FOGG, *Boston.* Metal Signs. *Diploma.*

270. SAMUEL WEST, *Boston.* Sash of Cut and Stained Glass. Superior and artistic work. *Bronze Medal.*

280. HENRY C. LAUTERBACH, *Boston.* Two cases Tin Toys. Very well got up.

299. CHARLES FOY, *Boston.* Model Schooner. Good model.

310. MUSGROVE & YOUNG, *New York.* Case of Japanned Ware. Very fine work. *Diploma.*

317. J. NOBLE, *Somerville, Mass.* Model Ship. A work of great labor. *Diploma.*

350. JAMES MANN, *Boston.* Case of Stuffed Birds. Very fine. *Silver Medal.*

364. JOHN P. RUGGLES, (13 *years old,*) *Dorchester, Mass.* Fancy Box. Very creditable for a boy of that age. *Diploma.*

390. GEORGE A. WHITE, *Sharon, Mass.* Fancy Box. Finely inlaid. *Diploma.*

418. N. VICARY, *Lynn, Mass.* Case Stuffed Birds. *Diploma.*

440. A. B. COPELAND, *Boston.* Model Steam Engine. Very superior workmanship, and entitled to a *Bronze Medal.*

493. HIRAM GREENE, *Boston.* Model Schooner. Well done. *Diploma.*

531. DR. F. COGSWELL, *Boston.* Curiosity Box. Made at sea. Very neat and finely engraved.

587. J. S. BAILEY, *Marblehead, Mass.* Model Schooner. Excellent work and fine model.

593. JOHN S. OSGOOD, *Roxbury, Mass.* Miniature Steam Engine. Good for an amateur. *Diploma.*

680. S. F. PRATT, & Co., *Boston.* Frame and Centre Piece. Good design, and nice piece of work. *Diploma.*

720. GILLESPIE & MALONEY, *Boston.* Oval Frames. Very good work.

725. WEBSTER & KINGMAN, *Boston.* Specimens of Papier Maché. Excellent designs and good work. *Diploma.*

761. BAY STATE BOX FACTORY, *by* HARRINGTON & GARDNER, *Boston.* Fancy Boxes. Very neatly made. *Diploma.*

818. **Bohemian Troupe**, *Boston*. Fancy Glass Blowing. Very beautiful. *Bronze Medal.*

1101. **George Binder**, *Quincy*. Case of Ornamental Hair Jewelry. Very rich goods and tastefully got up. *Bronze Medal.*

940. **J. C. Morton**, *Boston*. Chess Table. The stand made by machinery. Good work. *Diploma.*

1008. **Miss C. H. Hinchy**, *Charlestown, Mass.* Oriental Painted Table. *Diploma.*

2026. **Claflin & Co.**, *Providence, R. I., by* **Jos. L. Bates**, *Boston*. One case Wrought Shell Combs. The combs are of a superior quality and finish. Those inlaid with gold are very beautiful, and in general excellence far surpass any imported combs we have ever seen. *Silver Medal.*

CHEMICALS, PAINTS, VARNISHES, ETC.

Dr. A. A. Gould, George Yendell,
Dr. John Bacon, *Judges.*

The Committee feel bound to state, in justice to themselves, that the two gentlemen appointed, who were expected to determine the chemical analyses of the articles presented for examination, one by absence, and another by resignation, failed to serve. The place vacated by resignation was at last supplied; but the time subsequent to our organization was in consequence very short. This must be our apology if the analyses attempted should seem more limited and imperfect than would have been desirable. Having availed ourselves of all the time and various sources of information in our power, we hope our comments and awards may be deemed, in the main, just.

The number of entries is about the same as at the last Exhibition. No new branch of industry has been represented, though the products of established trades have been extended and improved. Articles of economical importance have received, as they should, a predominant attention,— such as Paints, Oils, Soaps, &c. New sources of materials, and new combinations and appliances, are numerous. Other articles which, beside being luxuries, are to be regarded as of great importance in an economical and reformatory point of view, such as vinous and malt liquors, also show an increased attention in that direction. There can be little doubt that a substitution of wines and beer for the coarse spirits so long in common use must work a beneficial change in the health and manners of the community, not to mention the opening of a new source of industry, or the importance of becoming in a measure independent of foreign importation. It is certainly a matter for surprise — a fact scarcely yet known in the community — that good wines and brandies are manufactured from our common wild grapes, and that already wines (white and red, of several varieties) and brandy of excellent flavor and quality are now sent to the Atlantic cities from California — a community yet scarcely more than ten years old — in such quantity, indeed, that an agency for them has been established in this city. Considering that most of our wines have hitherto been made of grapes of different varieties, collected from every part of New England, grown in different soils and exposures, and gathered by hundreds of different proprietors in every stage of ripening, it is surprising that anything so acceptable or uniform as the wines of Paige or Allen have been produced. It is well known that in Europe every change in exposure, arising from the elevation or slope of the vineyard, and every change in the soil, affords a different and peculiar wine. When a similar discrimination shall be made in our vintage, there is every reason to believe that our wines will be as characteristic and as acceptable as those of foreign growth.

Articles which are more strictly luxuries — Perfumery, Cosmetics, Hair Oils, &c. — are no less interesting, as showing the advance of ease and elegance in a community. And these exhibit a sensible improvement in composition, and the tasteful manner in which they are got up.

Chemistry and Pharmacy have shown their advance by the new names of contributors, and the very beautiful specimens which have been exhibited of new articles, many of them very difficult of preparation.

33. STIMSON, VALENTINE, & Co., *Boston.* Case of Paint Brushes. Very superior manufacture from stock of the best quality; specimens of articles commonly sold by the firm. *Diploma.*

STIMSON, VALENTINE, & Co., *Boston.* Case of Varnishes. An important article, brought to a state of great perfection by this firm. The case contains thirty-two varieties, drawn from their large cans. Specimens of these and other Varnishes, English and American, long exposed to the weather, were compared; and the Committee are satisfied that these possess unusual qualities of purity, gloss, and durability. It is gratifying that an article till recently obtained only from a distance, though the raw materials have been furnished by Massachusetts commerce, is now manufactured in our midst. The proprietors deserve commendation for the unwearied pains they have bestowed on their articles, and for the great degree of perfection to which they have brought them. *Silver Medal.*

233. C. L. PARKHURST, *Chelsea, Mass.* Frame of Ornamental Varnish Work. A picture produced by various shades of Varnish; seen only at a distance.

336. **Banker & Carpenter**, *Boston.* Invoice of Paints, Patent Kegs, &c. Among these are varieties of Varnish, which look well. Alabaster White Lead, very finely ground, and a good article. Permanent Greens, brilliant color, finely ground, &c., — a very beautiful paint. Graining Colors in Cans; good. Cans of assorted Oil Colors, very fine and brilliant for common use.

Patent Paint Bucket and Keg combined. This is a new and useful invention. The small empty kegs have hitherto been useless; this contrivance converts them into a very convenient and useful paint bucket, — the package costing no more than the common keg. The Committee deem it deserving of a *Bronze Medal.*

356. **Samuel Page & Co.**, *Boston.* Patent Paraffine Varnish. This will probably prove a useful preparation; but the Committee had no opportunity for testing it.

574. **M. & N. Crooker**, *Boston.* Card of Varnishes. Eighteen varieties; look well.

596. **Hanchet & Moore**, *Newton Lower Falls, Mass.* Chrome Green, in Jars. Three varieties looking well; but no specimens were furnished for trial.

760. **L. Martin & Co.**, *Philadelphia.* Lampblack, Chemicals, and Oils. The Lampblack is of the very best quality; samples examined were taken from packages put up for market. The Germantown, which is for ordinary use, is very fine, soft, free from grit, and dries well. The Coach-painters' is a very fine black. The Excelsior is a very superior article, jet black, finely calcined, and unexceptionable for artists and fine printing. All the specimens are quite free from the disagreeable odor usually attending Lampblack. *Bronze Medal.*

Triple Distilled Cannel Coal Oil, colorless and with slight odor; Arctic Burning Oil, for common lamps, straw-colored, with little odor; Arctic Machine Oil; Oil of Mirbane; Aniline. The oil of mirbane is very similar in odor to bitter almond oil, and is capable of taking its place in perfumery. It is much less expensive, and is free from prussic acid, which oil of almonds contains. Aniline is of interest as the source of the new *Mauve* dye. *Bronze Medal.*

The Committee regret that they have been unable to examine satisfactorily the various specimens of illuminating and lubricating oils exhibited. The manufacture of coal oils especially is one of the most important of those of recent origin, and will doubtless be greatly extended in the course of a few years.

993. **Brandon Iron and Car Wheel Company**, *Brandon, Vt.* Samples of Paint, &c. These are from the Brandon Works, and are of excellent quality. *Diploma.*

802. WILLIAM C. DONALD, *Boston.* Two Bottles of Printing Ink; one Bottle of Varnish; one Bottle of Lampblack. These articles are without descriptions, but appear well. The Lampblack is good.

371. A. OSBORN & Co., *Woburn, Mass.* Case of Glue. Very transparent and fine.

1143. COVELL BROTHERS. *New Bedford, Mass.* Invoice of Polishing Powder. Works well.

705. BLAKE & DARRACOTT, *Boston.* Sample of Paper Clay. Excellent.

1255. TUTTLE & MOORE, *Boston.* Case of Inks. These Inks, Red and Black, claim to be equally good for writing and copying, to be free from sediment, not corroding the pen, permanent in color, becoming darker with age. So far as we have been able to ascertain, these conditions are answered. They are extensively used, and highly approved. *Bronze Medal.*

226. J. A. TILLEY, *Charlestown, Mass.* Specimen of Blacking. It takes a good polish, and is marked "Original Hemlock Bark Blacking;" the Bark may add something to its preservative qualities. *Diploma.*

744. A. TYLER, *Boston.* Case of Blacking. In small tin boxes, and a very good article.

888. B. F. BROWN & Co. *Boston.* Liquid Japan Blacking. Of excellent quality, giving a brilliant polish. *Diploma.*

1023. CHARLES J. YOUNG, *Boston.* Case of Water Proof Leather Preservative. This preparation readily strikes into the leather, upper and sole, rendering it pliable and to a great degree Water Proof. It is an excellent article also for carriage tops and boots. It allows a polish from other blacking to be applied at once. The Committee, from experiments, believe it to be a valuable article and recommend for its various good qualities a *Diploma.*

659. WILDER & EASTERBROOK, *Boston.* Case of Cigars. Large and well made.

850. B. F. WILSON, *Boston.* Case of Cigars. Of every size, and beautifully made.

1248. J. W. JERAULD, *Boston.* Case of Cigars. Of native and foreign Tobacco; a good variety. *Diploma.*

331. MRS. J. FONTARIVE, *Boston.* Extract of Coffee. A fluid preparation of considerable strength. Though the beverage from it does not compare favorably with that made directly from the berry, yet it is a very convenient article for extemporaneous use, for picnics, pedestrian excursions, and the like.

882. LEWIS H. SPEAR, *New York, by* L. C. BRACKETT, *Agent,*

Boston. Fruit-preserving Compound. A preparation which professes to preserve Fruits, Melons, &c., in unstopped vessels for a long time, and at a very small expense. If it really accomplishes what it professes, it must be one of the most important articles which have come before us. The preserved specimens looked perfect, though we should judge them to be somewhat softened. We greatly regret that we were not furnished with any specimens, nor able to obtain any explanation of its composition or application.

1564. Dr. E. R. Clark, *Sharon, Mass.* Corn Starch. A good article.

652. Geo. P. Kettell, *Charlestown, Mass.* Six Specimens Pharmaceutical Vegetable Extracts, and two Bottles Residua. These Extracts preserve in a high degree the sensible properties of the drugs from which they were derived; and the insipid and inodorous Residua attest the efficacy of the processes employed. They are worthy of notice as showing what may be effected by skilful and careful Druggists, with no other appliances than the common apparatus of the shop. *Diploma.*

572. Howes Nourse, *Salem, Mass.* Case of Pulverized Herbs. Dried and pulverized culinary herbs, in fine condition, neatly put up in small tin cans. *Bronze Medal.*

1335. C. H. Atwood, *Boston.* Quinine Bitters. The bitters, of which we have seen the formula, are composed of a large number of the most potent tonics, skilfully combined. *Diploma.*

736. G. F. Craft, *Boston.* Ships Medicine Chest. Very neatly arranged.

1328. Dr. J. T. Brown, *Boston.* Case of Medicines. A variety of nice preparations, comprising medicines, instruments, and toilet articles, put up in exquisite style. *Diploma.*

1151. David M. Balch, *Boston.* Thirteen Bottles of Chemicals. Fine specimens of rare chemical products, many of them very difficult to prepare. *Diploma.*

1189. James R. Nichols & Co., *Boston.* Case of Chemicals. A large assortment, very neatly exhibited in a glass case. Most of the 75 articles are pharmaceutical preparations, which appear to be of good quality. They include many articles of recent introduction, such as Propylamine, Glonoine, the Valerianates and Hypophosphites. There are also various salts of iron and other metals, chloroform, sulphuric ether and other ethers. Some articles used in photography are included. The whole bears testimony of the enterprise of this firm. *Bronze Medal.*

535. **Edward Chamberlin & Co.**, *Boston*. Concentrated Leaven. Samples of Bicarbonates of Soda and Potash; Pearl Ash; Cream of Tartar, &c. These articles are of excellent quality. The concentrated Leaven is a nicely prepared and valuable substitute for yeast. No injurious substance is introduced into the bread, which is prepared for baking in a few minutes, and without the loss of flour occasioned by fermentation. It is a very convenient article, and works well in the hands of even inexperienced cooks. Specimens of bread and cake exhibited looked very tempting; and we ourselves have tried it for bread, cakes, and puddings with much satisfaction. *Bronze Medal for the Leaven.*

560. **Hodges & Sillsbee**, *Boston*. Burnetized Lumber and Cordage; Silicate of Soda; Shawmut Washing, Bleaching, and Disinfecting Fluid.

The process invented by Sir Wm. Burnett for preserving wood, canvas, and cordage from decay, by the application of chloride of zinc, has been in use for a length of time sufficient to prove its great practical value. The exhibitors have made arrangements for conducting the process in the most thorough manner, and at a moderate cost. They have prepared, in this way, the lumber used for the various horse railroads in this vicinity. The chloride penetrates the whole substance of the Burnetized articles, forming a permanent chemical combination with the woody fibres, without any injury to the texture of the articles to which it is applied. Burnetized wood has been used largely at the Lowell factories for the past ten years, and with great success. Among the specimens exhibited is one taken at random from a walk of spruce wood laid down in the yard of the Lowell Bleachery and Dye Works in 1850, and wholly exposed to the weather. It is still sound, though showing signs of decay in some spots.

The Silicate of Soda, or Water Glass, has a variety of important applications in the Arts.

The Shawmut Washing Fluid is a new and ingenious application of chemical principles, and so far as the Committee can judge from its composition, promises to be of great value for its intended purposes.

Bronze Medal for Burnetizing Process; Diploma for Chemicals.

748. **Jacob Thaxter**, *Boston*. Apothecaries' and Chemical Scales. Good of the kind.

923. **Oliver P. Drake**, *Boston*. Chemists' and Prescription Balances. Benzoline. These Balances are made in the most thorough manner. The Prescription Balance, designed and made for Harris & Chapman, apothecaries, merits particular mention for the accuracy and finish of its workmanship, as well as the ingenuity of its design. The beam is protected from dust and injury by an oblong glass case, no larger than its free move-

ment requires, and without openings except for the passage of the wires by which the pans are suspended. By this arrangement the pans are readily accessible, while the most delicate parts of the instrument are secured from damage. All the metal work is silver plated except the scale pans, which are silver, and are movable. Additional pans of glass are provided for occasional purposes. The rings on which the pans rest are provided with supports which, when raised, sustain them and check their vibration. The steel knife-edges on which the beam turns, and those sustaining the pans, rest on agate bearings. By turning a handle in front, the pans and beam are brought into action or lifted from their bearings, as required; these arrangements are essentially the same as in the best chemical balances. This balance has stood the test of several months' constant service in Harris & Chapman's store, and admits of weighing with sufficient rapidity for practical use in compounding prescriptions, while sensitive to $\frac{1}{100}$ of a grain. It is provided with platinum weights from two drams down to a millegramme. The forms of the larger weights correspond to those of the symbols of the weights they indicate.

The other large balance exhibited has the general arrangements of chemical balances of the first quality. The beam is graduated for rider-weights, and a new and ingenious arrangement is used to place them in position and lift them from the beam as wanted. They will in all respects compare favorably with any balances of foreign manufacture. *Silver Medal.*

Benzoline is an excellent preparation for removing paint, tar, and grease from clothing and articles of furniture.

377. G. T. BARNEY, *Malden, Mass.* Two cases Perfumery. The perfumes of this establishment have been commended in a former Report. They are highly odorous, clear, and beautiful; new varieties have been added; and the luxurious style in which they are put up fully equals that of the best French articles. *Bronze Medal.*

462. C. F. PRESTON, *Boston.* Two glass cases Bromade, Cocoa Butter, &c. Articles of well-known excellence. *Diploma.*

1025. GRANVILLE M. CLARK, *Quincy, Mass.* Case of Perfumery and Cosmetics. Very neatly got up.

1297. THOMAS HOLLIS, *Boston.* Twenty-four Bottles of Perfumery. The reputation of this house is such as to insure first-rate articles.

Bronze Medal.

1580. GEORGE JAQUES, *by* HARRIS & CHAPMAN, *Boston.* Jaques's Extract of Pond Lilies. A grateful extract from a native plant.

Diploma.

1628. WILLIAM BOGLE, *Boston.* Perfumery. These articles enjoy a nigh reputation, but we would call the attention of the Executive Committee to a statement on one of his handbills, sent to us, viz: that he had received a Silver Medal in 1853, and a Gold one in 1856; whereas we find by the Reports that he received only a Bronze Medal and a Diploma.

548. S. D. Hovey, *Cambridge, Mass.* Cocoa Glycerine. A very neat combination of Cocoanut Oil and Glycerine, two of the most beneficial articles for the hair. *Diploma.*

1593. Joseph H. Hoyt, *Boston.* Hiawatha Hair Restorative. This preparation gives a very satisfactory coloring to the hair, with very little trouble in its application, and appears to be unusually free from metallic ingredients. We think it to be one of the most commendable. *Diploma.*

1310. Charles Wharton, Jr., *Philadelphia, by* Francis G. Bowman & Co., *Boston.* Stand of Chestnut Grove Whiskey. A well-known and highly esteemed article, when it comes genuine from the manufactory. Like other articles in this line, the purchaser is not always sure to obtain it unfalsified. *Diploma.*

1335. C. H. Atwood, *Boston.* Columbia Bourbon Whiskey. A good article, and extensively used for medicinal purposes.

2025. Jesse Moore, *Louisville, Ky., by* S. N. Dyer, *Boston.* Bourbon Whiskey. A superior article, smooth, mild, and of most agreeable flavor. We have never tasted better. *Bronze Medal.*

1380. Flemming & Laughton, *Boston.* Fleming's Golden Ale. We have tried this ale, at various ages, of ordinary and stock varieties. It is transparent, has a clear hop-taste, is sufficiently lively, very carefully put up, and carefully kept. No adventitious ingredients present themselves. We do not hesitate to rank this as one of the best ales in this or any other country; and we consider it as agreeable and healthful an ale for use in the family or in sickness, as can be found. *Bronze Medal.*

194. Charles E. Savell & Co., *Roxbury, Mass.* Native Wines. Currant Wine, 1857 and 1858. A very well-flavored wine, unusually clear and free from the flavor of foreign substances. Grape Wine, 1857; a very pleasant, sweet, ladies' wine; a pleasant beverage with water for summer drink. *Bronze Medal.*

1104. Francis E. Yates, *Belmont, Mass.* Currant Wine; dark, and pale varieties. A most excellent article as to purity, flavor, and vinous qualities. *Bronze Medal.*

1210. Mrs. S. O. Nash, *South Boston.* Pure Currant Wine. Very good quality *Diploma.*

1355. J. B. HOWARD, *Lawrence, Mass.* Currant Wine. Good.

673. W. T. WHEELER & Co., *Boston.* Maryland and Virginia Coal Oil, for burning. Nearly colorless, with little odor. *Diploma.*

839. KANAWHA OIL COMPANY, *Virginia, by* C. E. GRISWOLD, *Agent, Boston.* Lubricating Oil from cannel coal. Burning Oil from cannel coal. Little odor or color. *Diploma.*

858. SPEARE, BURKE, & Co., *Boston.* Coal Oil, nearly colorless. Considerable odor. Pure Sperm Oil. Extra Winter Lard Oil.

875. VESTA COAL OIL Co., *by* A. C. MASURY & Co., *Agents, Boston.* Coal oil. Nearly colorless.

970. GRANVILLE MEARS, *Boston.* Lard Oil. Clear, with little color.

971. C. S. STEWART, *by* GRANVILLE MEARS, *Boston.* Shawmut Company's Coal Oil. Little odor or color. *Diploma.*

302. A. & E. J. HALE, *Foxcroft, Maine.* Kerosene Oil Burner; Kerosene Oil Lantern. The Burner possesses some important advantages over any other we have seen. The summit of the wick is always maintained at the same point in relation to the perforation of the cone, and this is at the point of most perfect combustion, as ascertained by experiment; the ignited portion of the wick being shortened or lengthened by raising or depressing the tube containing the wick. By the application of certain bars within the cone, the smoke which ordinarily arises on moving the lamp about is effectually prevented. The chimney is fastened on by a contrivance which secures it against fracture from expansion or contraction; and the air is introduced to the flame in such a way as not to heat the brass fitting enough to prevent handling, so that the chimney can at any time be removed and held in the fingers while cleaned. These and other advantages are secured by very simple contrivances, not liable to get out of order.

The Lantern is so contrived as to prevent disturbance from the blowing of a current down the chimney; and is readily trimmed without opening the lantern.

These improvements the Committee deem worthy of a *Bronze Medal.*

814 and 1397. GEORGE E. EMERY, *Lynn, Mass.* Samples of Soap. Staple and Fancy Soap. A large variety of excellent Soaps adapted to various uses. The materials are pure and well combined. For family purposes we should think none better could be found. Others are designed for manufacturers, for the sea, to be used with saltwater, &c. The Fancy and Toilet Soaps are also of excellent quality. *Bronze Medal.*

903. S. D. HOVEY, *Cambridge, Mass* Transparent Soap. Very soft and pleasant.

1207. **Stearns & Co.**, *Boston.* Invoice of Glycerine Soap. An article in which the glycerine is well embodied, we deem worthy of notice.

Diploma.

822. **Holden, Cutter, & Co.**, *Boston.* Soaps and Perfumery. An excellent assortment of pure and pleasantly perfumed articles, put up in a very attractive manner, showing progress in this department of manufacture.

Bronze Medal.

1616. **George W. Safford & Co.**, *Boston.* Indexical Soap. The Committee have examined these Soaps with much satisfaction. There are no less than eleven varieties; Pumice, Silver, Dental, Honey, Hotel, &c., adapted for every requisition of the household and toilet. They are so *indexed* as at once to show the purchaser the variety he wants for any particular purpose. The purity and perfect combination of the ingredients, the agreeable and well-proportioned odors, and the graceful forms in which they are presented, attest a care and advancement in this manufacture highly worthy of commendation. We have taken some pains to inquire into their processes, and find them conducted with an intelligence and honesty which insure further adaptations and genuine products.

Accompanying the Soaps are cases of very white and pure Lard, which have been kept for many months without becoming rancid. Also, Specimens of Cream of Lilies for the hair. The Committee think the superior excellence and manufacture of these articles are entitled to a

Silver Medal.

1352. **Charles B. Rice**, *Boston.* Blackberry and Elderberry Wine. The former is a very agreeable Cordial; and the latter has the peculiar astringency of the berry. *Diploma.*

1518. **S. C. Perkins**, *Boston.* California Grape Wine, designated as White, Angelica, Port, and Brandy. The White is excellent, and will compare well with most of the Rhenish wines. We recommend a trial of it by all who are fond of this class of wines. The Angelica is a sweet, pleasant wine of peculiar flavor, suited for ladies' use. The port has the color and astringency of the European wine, with the peculiar flavor of the California grape. The Brandy is clear, pure, mild, and to be preferred to most articles in common use under the name of Brandy. The Committee would call the attention of the public to these products, especially the White Wine and Brandy (to be found at the Agent's, S. H. Gibbens, 196 Washington St.,) and believe they will meet with favor.

Bronze Medal, to the Manufacturer.

1247. **E. Paige & Co.**, *Boston.* Brandy from native Grapes. There are two varieties, a pale and a dark one, both of which are excellent, especially the latter, which is very smooth, and would by many be preferred to the California brandy. *Bronze Medal.*

1560. S. H. ALLEN, *Shrewsbury, Mass.* C. S. DAVIS & Co., *Agents, Boston.* Native Wines. The Committee have been much pleased with these wines. Specimens of the vintages of 1858 and 1859 were furnished; some of them still or a little sparkling, and one variety very highly charged with gas rivalling the now well-known Catawba. Some are quite acid, and others agreeably sweet. We have taken some pains to inquire into the particulars respecting its production. We find the proprietor to be well acquainted with the culture of the grape and the manufacture of wine. Moreover, he has taken an important step, already alluded to, for bringing his wines to perfection and of a standard character. He has selected a grape, not yet named, allied to the Concord grape, and planted a large vineyard of it. He will thus secure a uniform grape, properly cultivated, and gathered at the proper stage of ripening. We think him actuated by a desire to improve the quality of our native wine, and to make it profitable to himself by securing a well-founded reputation.

There were also specimens of Blackberry and Elderberry Wine of very superior character.

For excellent Wines and liberal enterprise in grape-culture, the Committee deem the proprietor entitled to a *Silver Medal.*

1642. JAMES THOMAS, JR., *by* J. H. & S. G. THAYER, *Agents, Boston.* Specimens of Chewing Tobacco. These we find to be of excellent quality and condition. The "Army and Navy" brand of pound lumps, especially, are very superior in curing and flavor; and we recommend for the maker, for superior manufacture, a *Bronze Medal.*

FLOUR AND STARCH.

DR. CHARLES T. JACKSON, AVERY PLUMMER,
J. M. ORDWAY, *Judges.*

Your Committee on Flour and Starch, have attended to their duty and beg leave to report, that the number of samples of flour submitted to their examination was *twenty-four*, two of them being Graham flour.

All the samples were carefully tested, by the usual methods employed by inspectors of flour, and the proper comparisons of them with each other were duly made.

Your Committee have the satisfaction of stating that they hardly ever saw so good a lot of flour. The samples were generally of superior quality, and all of them were choice family or baker's flours.

They found much difficulty in passing upon the merits of those samples which most nearly approached each other in good qualities, especially those marked No. 42, No. 999, and O. K., which in the judgment of the Committee are all worthy of special commendation, and are alike entitled to a favorable notice. If it should be necessary to limit the award of the Committee to one sample, they would select that marked O. K., though they are of opinion that a Diploma ought to be awarded to all the three samples, 42, 999, and O. K.

The two samples of Graham flour are good specimens of that kind of flour, but are not in any way remarkable.

The samples of starch, consisting of about twenty packages, (lot 799,) were duly examined by the microscope, and by making clear starch of portions taken from some of the boxes. They were found to be of excellent quality.

The samples of Maizena were also examined, and found to be of superior quality; the microscope proving that they were produced from Indian corn.

The Committee would recommend the award of a Diploma for the Starch and Maizena.

The samples of flour above mentioned were drawn from the barrels by an Inspector, placed in boxes, and handed to the Superintendent as they were drawn. He placed a mark upon each box, and also a corresponding mark upon a list which he retained. The samples were then sent to the Judges. On the receipt of their report the list was examined, and it was found that the three barrels spoken of were contributed as follows: The barrel marked O. K. was

339. "Favorite Mills," *by* DAVIS & TAYLOR, *Boston*. For which the Executive Committee award a *Silver Medal.*

The barrels marked No. 42 and No. 999, were

553. BOSTON CITY MILLS, *by* ROBINSON & DODGE, *Boston*. For which they award a *Bronze Medal.*

The Starch and Maizena was

799. GLEN COVE CO., *Long Island, N. Y.*, *by* W. H. RICHARDSON & Co., *Agents*, *Boston*. *Diploma.*

CONFECTIONERY, PRESERVES, ETC.

SAMUEL H. GIBBENS, SAMUEL S. PIERCE,
H. D. PARKER, *Judges.*

Only a few persons contributed the results of their skill in the department assigned to this Committee; though the variety of specimens was great, and the articles generally attractive to the eye and palate; the following is submitted as the result of their examination.

666. Charles Copeland, *Boston.* One Case of Confectionery, and a Loaf of Cake. In general delicacy of material, and exquisite finish in the manufacture, this collection excels any offered for exhibition. The ornamental sugar work, especially, displays great taste and skill; while the specimens of Rock Candy appear unrivalled for the purity of the crystals. The Cake, likewise, was of excellent quality. The Committee are of opinion that the superiority of Mr. Copeland's articles entitles him to the award of a *Bronze Medal.*

541. John W. W. Marjoram, *Boston.* American Confectionery. This assortment was large, comprising many very delicate preparations. In addition to a great variety of candies, cordial drops, and others of different flavors, this contributor offered cream dates, cream figs, and jujube paste; also a case of beautiful ornaments made from sugar.

All the articles embraced in this collection appear to be of good quality, and creditable to the native enterprise employed in their manufacture.

Mr. Majoram assures the Committee that no deleterious coloring matter is used in his confections; and, as his goods are widely distributed, there is much satisfaction in recognizing their apparent purity.

For his large variety, and the general excellency of his confections, the Committee would award him a *Bronze Medal.*

2019. Charles F. Heilge, *Boston.* Seven jars of Confectionery. These contained Cream Candy, of various flavors; also, Hoarhound Drops, Honey Rock, and Iceland Moss and Flax Seed Candies. This last preparation, which combines the healing properties of the Moss and Flax Seed, in a pleasant confection, was introduced by Mr. Heilge, and has already gained public favor by its soothing effect in cases of bronchial irritation. The Honey Rock Candy and Hoarhound Drops, also, seem worthy the attention of all who seek to allay the discomfort of a cough by the use of confections. The cream candies in this collection were all excellent, and evince skill and nice regard to material on the part of this contributor, to whom we award a *Diploma.*

157. Daniel Fobes, *Boston.* Turkish Confectionery. This collection embraces Fig Paste, Grape Drops, Fig Marmalade, &c. These preparations appear to be suggested by the article formerly imported from Smyrna as Fig Paste; an agreeable luxury, but which was evidently made from other materials than the fig. The articles of home manufacture here submitted compare favorably with those of a similar nature introduced from

abroad; and the Committee are of opinion that none but wholesome materials are used in Mr. Fobes's preparations. His marmalade, made from the genuine fig, commends itself to lovers of that fruit.

These specimens combined merit the award of a *Diploma.*

MUSICAL INSTRUMENTS.

William Read,	George Derby,
Charles J. Capen,	James C. D. Parker,
J. Baxter Upham,	Samuel Jennison,
Carl Zerrahn,	*Judges.*

The following instruments were offered for examination, in competition for awards, viz: —

Thirty-nine Pianos, fifteen Melodeons, one set Organ Pipes, two Banjos, one Violin, one Bugle, one Bell, one Guitar, one Model exhibiting grand piano-dampers as first adapted to squares; all of them were examined by the Committee.

The Piano-Fortes were contributed as follows: —

16[illegible]. Chickering & Sons, *Boston.* Five Full Grands, two Semi-Grands, four Uprights, four Squares.

1596. Timothy Gilbert & Co., *Boston.* Two Full Grands, two Parlor Grands, two Squares, one having the Æolian attachment.

1539. Wm. P. Emerson, *Boston.* One Semi-Grand, two Squares.

1570. Hazelton Brothers, *New York, by* C. R. Adams & Co., *Boston.* Two Squares.

1552. N. M. Lowe, *Boston.* Two Squares.

1601. G. A. Millar & Co., do.

1575. J. W. Brackett, one Organ Piano, having an organ pedal attachment, for organ practice.

1597. Wendall P. Marvin, one Square.

1611. Wm. Bourne, four Squares.

1604. John E. McNeil, two Squares.

In this department the Committee recommend the following awards: —

To Chickering & Sons, for their Grands, Semi-Grands, and Squares, especially noticing No. 23,302, a *Gold Medal.*

To Timothy Gilbert & Co., for their Grands and Parlor Grands, a *Silver Medal.*

To Hazelton Brothers, New York, for their Square Piano-fortes. The first *Silver Medal.*

To N. M. Lowe, for his Square. The second *Silver Medal.*

To Wm. P. Emerson, for his Square. The third *Silver Medal.*

To T. Gilbert & Co., for Piano, with Eolian attachment, a *Bronze Medal.*

To J. W. Brackett, for his Organ Piano, *Bronze Medal.*

To J. T. McNeil, for his Square Piano, *Bronze Medal.*

To G. A. Millar & Co., for their Square, the 1st *Diploma.*

To Wm. Bourne, for his Square Piano, the 2d *Diploma.*

To Chickering & Sons, for their Upright Pianos, a *Silver Medal.*

The instruments from the factory of Chickering & Sons, in the opinion of the Committee, fully maintained the high superiority which their instruments have hitherto held; and judged from whatever point of view, musically gave the most satisfactory proof of their right to be ranked among the very best of the kind.

Your Committee desire especially to call attention to No. 23,302, a Square, with over-strung base, and to express their unanimous and decided opinion that in this instrument, the makers have made a direct step in advance, over all their previous exhibitions. It stood out in contrast with the others of its kind, in bold relief, and was as near what a perfect piano ought to be, as can well be made. It is to be hoped that the makers will more thoroughly cultivate this department of their work, since in so doing they send out a class of instruments, which, at a comparatively low price, will fill the place of any but the first quality of Grand Pianos.

Your Committee also desire to record their commendation and pleasure for the degree of excellence which has been gained by this firm, in the manufacture of Upright Piano-fortes. It has long been a desideratum in this country to produce good instruments, which would sustain themselves in time and tone. They are elegant as articles of furniture, a consideration, which, secondary though it be to the chief end of the mechanism, is nevertheless to be duly weighed; and occupying much less now than any other form of the piano, they are advisable in many places where neither a Square nor a Grand could be put. Your Committee felt that the utmost encouragement should be given for what has already been accomplished, and are hopeful that future exhibitions will show an increased improvement.

The Grand Piano, No. 7,306, contributed by T. Gilbert & Co., is a remarkably fine instrument, and, but for the fact that in a competition but one can stand at the head, would have been pronounced worthy the highest rank. But, while it was much better than some of its kind on exhibition, there were others which were really its superior, and for this reason your Committee feel obliged to award it the second prize, but as being only a little less perfect instrument than the very best. Judged by an absolute scale, it will stand as an instrument of great excellence, and equalled by few. The Parlor Grands were also excellent instruments, and in all respects worthy the reputation of their makers.

Before leaving the subject of pianos, the Committee would refer to a patented invention exhibited to them by Mr. N. M. Lowe, and which was adopted in the piano-fortes exhibited by that maker. It perhaps does not come exactly within the province of this Committee to decide upon its merits as an invention any farther than it seemed to them to increase the command of the player over the keyboard, and give power of expression. The effect of the improvement was perceptible in the greater clearness gained in *staccato* and other passages, which depend for their brilliancy upon the readiness with which the key responds to the touch of the player. Believing that it is a meritorious improvement, your Committee commend it to favorable notice, with the hope that by a more general use its excellence may be established, and cause it to meet the anticipations of the inventor.

Your Committee regret that they deem it a duty once more to call attention to a matter which has been alluded to in a previous report. Everything which tends to divert the attention of the player during performance should be most carefully avoided. Under this head come all sorts of decorations of the keyboard and unusual forms of keys, which are not only of no aid to the players, but a source of positive annoyance.

The Committee next proceeded to examine the Reed Organs, represented by a variety of names and forms. There were fifteen, contributed by the following makers.

1553. J. H. Gipson, *Groton Junction, Mass.*, *by* Hamant, Bruce, & Smith. One Melodeon.

Phelps & Chace, *by the same.* One Melodeon.

Dearborn & Severance, *by the same.* One Melodeon.

1567. Mason & Hamlin, *Boston.* Two Organ Harmoneons, one Boudoir Harmoneon, one Harmoneon, one Organ Melodeon, seven Melodeons.

In this department, your Committee recommend that there be awarded to Mason & Hamlin, for their instruments, including all kinds, a

Silver Medal.

To Dearborn & Severance, a *Diploma.*

To Phelps & Chace, a *Diploma.*

To J. H. Gipson, a *Diploma.*

The instruments exhibited by the firm of Mason & Hamlin were of remarkably fine workmanship, and the care exercised in voicing the reeds has made them better than those of any other makers with whose instruments your Committee are familiar. The enterprise and ingenuity which has been bestowed on them, and elevated them from the low level which in their first inception these instruments held, cannot be too highly commended and encouraged. Without discussing the question whether one kind of mechanism is more legitimate than another for producing tone in instruments of the organ class, there can be but one opinion of the advance already made in the manufacture of reed organs, and their present superiority over the specimens of former years; and your Committee would most cheerfully award to Mason & Hamlin the principal merit in promoting such a desirable result.

While bearing willing testimony to the great improvements which this firm have introduced into the manufacture of these instruments, in the opinion of a majority of the Committee the instruments themselves are not so pre-eminent in rank or importance as to call for a renewed award of a gold medal, which, as appears by the record of the Association, they received at the last Exhibition, when they were first introduced.

With reference to the other instruments submitted, the Committee recommend the following awards.

1301. ISAIAH H. AREY, *Boscawen, N. H., by* A. J. MORSE, *Boston.* For one Violin, a *Bronze Medal.*

For a Banjo of exquisite workmanship, a *Diploma.*

75. E. G. WRIGHT, *Boston.* One Silver Bugle, with Gold Keys and an Improved Valve Set Piece, of very fine workmanship, a *Bronze Medal.*

1329. H. WESTMAN, *East Boston.* One Banjo of great beauty and elegance of workmanship, a *Diploma.*

H. N. HOOPER & Co. For a fine-toned and very powerful Bell. (See report of Committee on Castings.)

1576. SAMUEL PIERCE, *Reading, Mass.* A Set of Organ Pipes. *Diploma.*

FINE ARTS.

Le Baron Russell, Benjamin S. Rotch,
Chester Guild, Jr., Robert W. Hooper,
Judges.

The Committee on the Fine Arts herewith present their report on the specimens submitted for their examination.

Sculpture and Painting.

The specimens in these departments do not appear to your Committee to require special notice at this time. Some of the contributors have received medals and diplomas at previous Exhibitions of the Association, and there is not sufficient evidence of improvement, in the works submitted, to call for a second award.

Photography.

The contributors in this department are numerous, and many of the specimens examined show a high degree of merit. The art of Photography has made much progress during the last few years, and is no doubt destined to take a still higher position hereafter. It is much to be desired that those who devote themselves to it should direct their attention more especially to the improvement of their own art, instead of attempting to make up for its present deficiencies by the aid of painting, which in most instances seems to your Committee to detract from the value of their work. The Committee have unanimously given the preference to those specimens which are untouched by the brush. Every stroke of the brush, however carefully applied, must obscure something of the beauty of a genuine photograph. Most colored photographs, particularly the large portraits on which so much labor is bestowed, are very unsatisfactory as works of art. Some of these are very beautifully executed, but those which have the most merit owe their chief value to the artist in oil or in water colors who painted them, and should be exhibited in his name.

One of the chief causes of the deficiencies in many of the specimens of photographic portraits at our exhibitions, is the want of attention to artistic effect in the position and attitude of the sitter. This is particularly observable in representations of families and other groups. There would seem to be great difficulty in the attainment of a graceful and natural grouping in these pictures. There are many exceptions to the application of these remarks, among which may be mentioned groups and single figures by Messrs. Black & Batchelder, Southworth & Hawes, and by others.

A part of the difficulty in obtaining satisfactory portraits by photography is no doubt owing to the length of time during which the sitter is obliged to remain motionless in a required position, the effort to maintain which has often the effect to discharge all natural expression from his features. If, by any improvement in the process, an impression could be taken instantaneously of persons, as is now sometimes done of scenery, a great advantage would be gained. Some of the finer specimens of English and French portraits show an ease and grace of attitude, with a judicious management of light and shade, and a natural and unconstrained expression of the features, which are not often to be met with in our exhibitions.

Many of the views of scenery and buildings exhibited as specimens are very beautiful, and show decided progress in the art. Those of streets and places in Boston by Messrs. Whipple, and Southworth & Hawes, of buildings by Messrs. Black & Batchelder, and those taken at Nahant and the seashore by Messrs. Silsbee, Case & Co., are particularly worthy of notice.

In many specimens, however, a neglect of attention to artistic effect in the selection of the proper point of view, and the general arrangement of the picture is very apparent. There is also a want of the fine gradations of light and shade, and of good atmospheric effect, which are found in some of the best foreign photographs, showing that, although our artists have produced many admirable works, they have yet much to learn in these important particulars. The energy, ingenuity, and skill which so many among them are daily devoting to their pursuit, leave no room for doubt that they may eventually equal and perhaps surpass their foreign competitors.

The application of Photography to the copying of engravings and paintings promises to be of much value, and is well worthy of attention. It is to be regretted that the subjects selected are not always of the highest class, and that engravings of little or no merit are so often reproduced. Some very successful attempts have been made to introduce a higher order of subjects, and the specimens exhibited by Messrs. Southworth and Hawes of this kind, particularly those from the Toschi series after Correggio, have great merit, almost equalling the original engravings in beauty.

The art of Photography is so admirable in itself, and capable of such wonderful effects, that we look with great interest upon all efforts to improve its processes and enlarge the sphere of its useful application. Among the later improvements may be mentioned the method of Messrs. Southworth & Hawes, by which they are able to represent the upright outlines of tall buildings as perpendicular and parallel, instead of converging and inclined as is usually the case. We would also call attention to the beautiful stereoscopic views of the moon by Mr. Whipple, as among the most interesting new applications of the art.

Of the stereoscopic pictures many of those exhibited by Mr. Deloss Barnum are remarkable for their clearness and delicacy of execution, and their accurate representation of the forms of natural scenery. Some of the specimens by Mr. Bierstadt also have much merit.

WOOD ENGRAVING.

Some excellent specimens of Wood Engraving are exhibited by Messrs. Bricher & Russell, from photographs of objects taken directly from the negative plate upon the surface of the block, by a new process which promises to be of great value. The exhibitors do not claim the merit of the invention, but of the introduction of it into use, they having purchased the patent right for Boston and the vicinity. This process is particularly applicable to engravings of machinery and of all objects where accuracy and fidelity of representation are indispensable.

Good specimens are noticed of wood engravings by other artists, some of whom have received diplomas or medals at former exhibitions.

LITHOGRAPHY.

The best specimens of Lithography are those of Mr. Sonrel, to whom a Silver Medal was awarded at the last Exhibition. Those by Messrs. Bufford, and Fabronius, are very creditable to them and show much care and a considerable improvement. The chromo-lithographs by Messrs. Prang and others, intended for ornamental cards and illustrations of machinery, are well executed and well adapted to their purpose.

The following is a list of the specimens for which the Committee recommend medals or diplomas :

11. J. B. GUELPA, *Chelsea, Mass.* Specimens of Oil Painting on Glass. *Diploma.*

37. A. SONREL, *Woburn, Mass.* Frame Lithographs. Silver Medal at last Exhibition.

93. G. E. JOHNSON, *Boston.* Frame Engravings. *Diploma.*

113. ALBERT E. SWASEY, JR., *Boston.* Frames of Architectural Drawing. *Diploma.*

141. D. C. FABRONIUS, *Boston.* Ten Frames Lithographs. *Diploma.*

200. LUTHER W. CLARK, *Boston.* Case of Minerals, from Lake Superior. *Bronze Medal.*

391. L. PRANG & Co., *Boston.* Frames of Ornamental Cards. *Diploma.*

441. Andrew & Filmer, *Boston*. Wood Engravings. *Bronze Medal.*

564. Joseph H. Merriam, *Boston*. Medals, Letter-Cutting and Die Sinking. *Bronze Medal.*

974. John H. Bufford, *Boston*. Lithographs. *Diploma.*

1060. Deloss Barnum, *Roxbury*. Stereoscopic Pictures. *Bronze Medal.*

1205. Bierstadt Brothers, *New Bedford, Mass*. Photographs and Stereoscopic Pictures. *Bronze Medal.*

1215. Black & Batchelder, *Boston*. Photographs. *Silver Medal.*

1469. Silsbee, Case, & Co., *Boston*. Photographs. *Silver Medal.*

1535. Samuel Masury, *Boston*. Photographs. *Bronze Medal.*

1536. Southworth & Hawes, *Boston*. Photographs. *Silver Medal.*

1650. John A. Whipple, *Boston*. Photographs. *Silver Medal.*

1636. D. T. Smith, *Boston*. Specimen of Map Engraving on Wood. *Diploma.*

2014. Franklin Hedge, *Boston*. Wood Engraving. *Diploma.*

444. C. Needham & Co., *Boston*. Painting and Graining on Doors. *Diploma.*

PENS AND PENMANSHIP.

James Hovey, Levi L. Willcutt,
George Stimpson, Jr.
Judges.

While the Committee most cheerfully accord to the ornamental penmanship, the praise which it merits for its grace and beauty, for facility in using the pen which it indicates, they must express their preference for specimens of plain, practical mercantile penmanship.

They regret that there were not more contributions in this department, and hope that a greater number may be presented at the next Exhibition.

Having carefully examined each specimen, the Committee would respectfully report.

67. J. B. Richards, *Boston*. A lad 16 years of age. Pen Drawing. Three beautiful specimens, evincing a cultivated taste, and a high degree of kill in the use of the pen. *Bronze Medal.*

432. J. W. Payson, *Boston.* Ornamental Penmanship. Well executed.

433. O. E. Linton, *by* Comer & Co., *Boston.* Mercantile Penmanship, by O. E. Linton. Very fine specimens of off-hand, mercantile penmanship. The best on exhibition. *Silver Medal.*

435. Spear & Sawyer, *Boston.* Pen Drawing and Writing, by Spear & Sawyer; Ordinary Map, by a pupil. Finely executed.

602. David Davidson, *Boston.* Specimens of Pen-Drawing. Show great perseverance and ingenuity, for which the Ex. Com. award a *Diploma.*

728. Joseph P. Cobb, *Boston.* Pen Drawing. Very good.

925. Comer & Co., *Boston.* Ornamental Penmanship. Excellent.

945. A. G. Shaver, *New Haven, Conn.* Shaver's Patent Eraser, Burnisher, and Pencil Sharpener, combined. An ingenious combination, worthy of notice. *Diploma.*

815. J. M. Whittemore & Co., *Boston.* Book and Chart of Dunton's System of Penmanship. An excellent system for teachers.

672. Jennie A Simonds, *Charlestown, by* S. G. Simonds. Ornamental Penmanship, by Jennie A Simonds. Worthy of notice.

1044. D. W. Foster, *Boston.* Card Marking. Best specimen of its kind.

1073. Henry F. Whitney, *Boston.* Pen Drawing, by Henry P. Whitney. Beautiful in design.

1476. Mrs. L. A. Hutchins, *Boston.* Ornamental Penmanship. A very beautiful specimen of ornamental penmanship. The wreath claims particular attention for elegance of design, and fine execution, and evinces a great degree of taste in the penman. *Bronze Medal.*

1623. A. D. Bill, *Boston.* Penmanship. Very good.

The Committee regret that an article so indispensably necessary as the Pen, has not been offered for exhibition.

PRINTING, BINDING, AND BOOKS.

William Crosby, George C. Rand,
Caleb Rand, John T. Prince,
Judges.

On looking over the catalogue placed in their hands, this Committee were at once impressed with a feeling of disappointment at the lack of interest exhibited by those who have in charge, "The Art preservative of Arts."

That so small a part of this great exhibition should have been made up by contributions from those engaged in the various departments of this important branch of business, in a city possessing all the materials, and so capable of doing justice to its importance, is a matter of great regret.

While the Publishers of our country are able to present specimens of their skill equalling in all respects those of any in the world, not one has furnished an opportunity to judge of the progress made since the last Exhibition, nor has any Book Printer or Binder, contributed anything to show the improvements which during the last few years have been made in their several departments.

The Committee are aware that this is not owing to inability on the part of those engaged in these manufactures, and they therefore feel the more regret that no greater interest should be felt in these exhibitions by the Printers, Binders, and Publishers of Books. They trust, however, that it is only necessary to call attention to the subject, and that at the next Exhibition of this Association all will be suitably represented.

The Committee having examined with care all the articles on the list submitted to them, present the following report: —

120. Lowe Printing Press, Co., *South Boston*. Lowe's Patent Printing Press. A miniature machine, simple in its application, and performing very good work, but impracticable for the Printing Office. *Diploma.*

153. Binney & Co., *Boston*. Straw Box Boards. A good firm article.

156. Charles W. Hawkes, *Boston*. Card Printing Press. A very good machine for printing cards, yet susceptible of some improvements, which it is understood the inventor intends to make.

167. M. B. Bigelow and Anson Hardy, *Boston*. Bigelow's Patent Paper Cutter. Its only peculiarity consists in a traversing cutting-board.

209. M. B. Bigelow and Anson Hardy, *Boston*. Hand-Stamp and Seal Presses. The dies neatly cut, and the presses and stamps appear to print and emboss with distinctness.

261. T. Bailey, *New York*. Improved Method for Copying Letters. This consists in substituting a square piece of bass-wood, wet, for the ordinary mode of wetting the leaf. As the Committee had no opportunity of testing its merits, they rely upon those who have used this process, and report favorably thereon.

275. Henry F. Marsh, *Boston*. A Case of Wallets, Pocket Books, Note paper, Envelopes, &c. Contains good specimens of these useful articles.

288. **John Stiles**, *Boston*. A Case of Illuminated Envelopes. The illuminated or advertising Envelope is an article of recent invention, and is becoming popular as an advertising medium. This case contains specimens well got up in various colors and is a meritorous contribution. *Diploma.*

301. **Thomas Groom & Co.**, *Boston*. A Case of Mercantile Blank Books. Fine specimens of ruling and forwarding. The finish very beautiful, and though more elaborate than would ever be required for actual use, evinces taste and skill, and ability to produce the less ornate, but more useful, a *Silver Medal.*

349. **Edward A Curtis**, *Boston*. Three Printing Presses. The Gordon Franklin Press, half-medium, quarter-medium, and card size; all worked by foot-power. The half-medium press, which is called "The Piler," takes the sheets by nippers, carries them to receive the impression, and then piles them in front of the operator. With the exception of "the Piler" attachment, all three are of similar construction. They are excellent machines, perform good work and at a rapid rate, and are eminently worthy the high estimation in which they are held by the craft. We think them entitled to a *Silver Medal.*

417. **S. T. Bacon**, *Boston*. Book-Folding Machine. Very neatly constructed and well adapted for a certain class of work. It possesses merits which are capable of being extended and which may attain for it a very satisfactory future. We recommend a *Bronze Medal.*

528. **Thomas S. Hudson**, *East Cambridge*. A Case of Glass Inkstands. Contains a fine assortment of well made and useful stands, embracing the most recent inventions. *Diploma.*

537. **Morrill & Son**, *Boston*. Samples of Printing Ink. A good assortment of different colors and qualities. This Ink is well made, works evenly, and shows a clear bright face. *Diploma.*

590. **George K. Snow**, *Boston*. Book-folding and Pasting Machine. A simple yet very ingenious and useful invention. Like the Sewing-Machine, its practical advantages can at once be seen, and must be appreciated by all who have occasion for its use. We consider this a very valuable and meritorious invention and well entitled to a *Gold Medal.*

613. **Frederick Otto Degener**, *New York*. Printing Press. A slight variation from the Gordon Press, yet combining many of its movements; is well constructed and performs good work.

674. **B. C. Harrod**. *Boston*. Printer's Rollers. The specimens exhibited are good.

688. **Oliver E. Weston**, *Roxbury*. Hand Press. This Press is self-

inking, and combines many features of the power-press, is somewhat complicated in its arrangements, though as an ingenious piece of mechanism is entitled to great credit, a *Bronze Medal.*

730. David W. Hapgood, *Boston.* Show Cards composed of adhesive letters. A very neat style of show-card, formed by the combination of adhesive letters of various sizes and colors and arranged with taste. *Diploma.*

760. L. Martin & Co. *Philadelphia.* Samples of Black Printing Ink. This Ink is made of superior stock, works clear and even, shows a deep jet color, and does not smutch, or as printers say "smooch." Another feature which recommends this Ink particularly to Card printers, is its entire freedom from adhesion. Three qualities are exhibited, designated "Book," "Card," and "Cut." The latter is manufactured by an improved process, and is equal to the best French or English Ink, a *Silver Medal.*

783. Nathaniel S. Dearborn, *Boston.* One Frame Initial Stamping in Colors. The frame contains specimens of Envelopes of various sizes and styles upon which initial letters are embossed in a variety of colors. Very neatly executed. *Diploma.*

800. George K. Snow, *Boston.* Postage Stamper and Labelling Machine. Though this machine when examined by the Committee was not in perfect order, it seemed well adapted to the purpose for which it is designed.

801. Alfred Mudge & Son, *Boston.* Two Cases and Frames Specimens of Printing. A beautiful display, all the specimens being from among the regular work performed in their office. For taste in composition and excellence in execution, they are well worthy the high reputation sustained by this firm. We recommend a *Silver Medal.*

937. Clark & Co., *Boston.* Case of Printed Books as Specimens of Library Binding. Good specimens of finish.

1216. Proctor & Clark, *Boston.* Case of Stationery. A neat assortment of well-selected articles of utility.

1652. Charles Phelps, *Salem, Mass.* Patent Envelope Opener. This consists of a small thread which extending across the envelope is pasted in the crease formed by the folding of the flap, or in the fold at either end. On pulling one of the ends of the thread which project slightly beyond the paper the envelope is torn through its whole length. A very simple but efficient invention.

2016. George Coolidge, *Boston.* Catalogue and Journal of the Exhibition. A good specimen of printing.

2017. J. H. **Atwater**, *Providence, R. I., by* **Wm. P. Tenney**, *Boston.* A Copying Machine. The copy is obtained by rolling the letter and copying paper upon a cylindrical block. Not a new invention.

196. **Smith & Peters**, *New York, by* **Peter C. Jones**, *Boston.* Specimen Case of Plain and Fancy Cards, manufactured by Smith & Peters, of New York. A good show. The assortment small but good. The fancy cards neatly ornamented, evidencing taste and skill, and the material of prime quality. Worthy a *Bronze Medal.*

NEEDLE-WORK, EMBROIDERY, FANCY WORK AND MILLINERY IN GENERAL.

Mrs. A. M. Conant, Mrs. F. S. Dyer,
Mrs. C. E. Fuller, Mrs. Henry Lyon,
Miss Harriet Tuttle.

Judges.

The Committee entrusted with the examination of specimens in Needlework, Embroidery, &c., beg to introduce their report with a reiteration of the remarks of the Committee of the last two Exhibitions, upon the great number of contributions entirely devoid of merit, and wholly unworthy of the labor and time necessarily bestowed by the Committee in their gratuitous duties.

Your Committee would earnestly recommend that in future exhibitions, the articles presented in this department should first be subjected to suitable supervision, and only those found worthy of notice be admitted to competition for premiums. The extent of the evil complained of may be judged from the fact that of the large number of articles examined, (nearly five hundred,) only one third or at the most one half are, in the opinion of your Committee, in any manner entitled to notice.

These remarks are more particularly applicable to the contributions of Needle-work, while in the Department of Fancy Work (in Wax, Moss, Feathers, &c., &c.,) evince much more comparative excellence, most of these developing originality of design, and many possessing the additional merits of good taste and ingenuity.

As a whole your Committee consider that the department of the Exhibition submitted to their examination presents no very marked features of improvement over the preceding ones of the past few years.

The following is a list of such of the articles examined as the Committee deemed worthy of remark.

1001. Mrs. A. Richardson, *South Boston.* Ribbon Quilt, of 1500 pieces, beautifully shaded. *Diploma.*

1002. Mrs. F. A. Bell, *Boston.* Bed Quilt, Red, White and Blue. Quilt original.

1003. Miss Maria H. Walker, *Boston.* Bed Quilt. Shows industry.

1005. Miss Mary Jane O'Flanagan, *Charlestown.* Vase of Wax Flowers, worthy of a *Bronze Medal.*

1014. Miss Sarah E. Mann, *South Boston.* Knit Shell Work Quilt. Very evenly done.

1016. Mrs. C. Myers, *Boston.* Basket Work Quilt. Shows ingenuity and neatness, which for one of her age deserves a *Diploma.*

1017. Mrs. B. Foster, *Boston.* Knit Shell Work Quilt, 769 pieces, by a lady seventy-five years of age. Very neatly done. *Diploma.*

1018. Mrs. William E. Hicks, *Roxbury.* Two Embroidered Skirts. Very neatly done.

1021. Mrs. G. A. Faxon, *Boston.* Patch-work Quilt. "Rising Sun." Very ingenious.

1022. Mrs. H. K. Wasson, *Charlestown.* Frame of Worsted-work. Very pretty.

1030. Miss Olivia A. Towle, *Boston.* Frame of Worsted-work. Very evenly done.

1031. Mrs. R. M. T. Farnsworth (aged 63), *Boston.* Drapery Skirt. Very neatly done. *Diploma.*

1062. Mrs. M. B. Hoadley, *Boston,* Shell-work Quilt. Very handsome. *Diploma.*

1065. Mrs. Mary Butler (aged 73), *Boston.* Shell-work Quilt, 650 pieces. Very well done.

1069. Mrs. R. A. Morrill, *Salisbury, Mass., by* Mrs. C. A. Wright. Two Rag Rugs. Very neatly done. *Diploma.*

1070. J. K. C. Sleeper, *Boston.* Case of Bonnets. The Green Hat worthy of notice.

1071. Miss M. Wilson, *Charlestown.* Embroidered Handkerchief. Very neatly done.

1075. Miss Maria A. Morse, *Chelsea.* Chair Tidy. Very neatly done.

1080. Miss M. F. C. Hendy, *Chelsea.* Infants' Skirt. Well done.

1081. Miss Mary H. Robbins, *South Reading, Mass.* Embroidered Slipper Patterns. Very well done.

1084. Mrs. A. Virtue, *Chelsea.* Crochet Quilt. Neatly done.

1091. Mrs. E. B. Chandler, *Boston.* Embroidered Chemise. Very regularly and neatly done.

1092. Mrs. A. W. Percival, *Boston.* Patchwork Sofa Pillow. Neatly done.

1096. Mrs. B. Wentworth, *East Cambridge.* Needlework Quilt. Unique in design, and well executed.

1099. Mrs. Maria Adams, *Boston.* Patchwork Child's Quilt. Well done.

1102. Miss L. M. Treadwell, *Boston.* Worsted Work Breast Pin. Finely executed.

1113. Miss Nancy Eaton, (64 years old,) *East Cambridge.* Bed Quilt. Original in design, and neatly made.

1115. Miss Mary E. Hill, *Somerville.* Shell Work Quilt. Very handsome. *Diploma.*

1128. Miss Nellie M. Whittredge, *Lynnfield, Mass.* Oriental Painted Table. Neatly done.

1132. Miss S. M. Hathaway, (a blind girl,) *Boston.* Bead Basket and sundry articles of Bead Work. Neatly done.

1136. A. F. Brown, *Malden, Mass.* Cone Work Frame, Box, and Basket. Well done.

1138. Mrs. M. Yale, *Melrose, Mass.* Patchwork Quilt. Specimen of brilliant colors and neat execution.

1142. Mrs. Sarah Hardwich, *Boston.* Two Frames of Worsted Work. Worthy of a *Diploma.*

1149. Mrs. George W. Prescott, *Quincy, Mass.* Wrought Counterpane. Original, and very neatly done. *Diploma.*

1150. Mrs. Harrison Clifford, *Lynn, Mass.* Case of Shell Work. Very elaborate.

1160. Mrs. R. G. Heald, *Lynn, Mass.* Shell Work Frame. Very elaborate.

1161. Mrs. Stephen Smith, *Somerville, Mass.* Silk Patchwork Quilt. Very handsome.

1167. Miss Emma Wenborn, *Roxbury.* Crochet Quilt and Window Curtains. Well done, and worthy of a *Diploma.*

1168. Mrs. Lydia Stone, *Salem, Mass.* Silk, Satin, and Velvet Quilt. Worthy of a *Diploma.*

1169. Miss S. Walker, (62 years old,) *South Boston.* Patchwork Quilt. Neatly and tastefully made.

1171. Miss Mary E. Carter, *Amesbury, Mass.* Crochet Tidy. Very beautiful. Worthy a *Diploma.*

1172. Mrs. P. Mackintosh, *Boston.* Knit Shell Work Quilt. Very well done.

1173. Miss Jane B. Cunningham, *Chelsea.* Open-work Knit Stockings, Lace, and Pincushion Cover. Work very fine. • *Bronze Medal.*

1176. Miss Lizzie F. Sanford, *Lowell, Mass.* Case of Embroidered Flannel. Very beautiful. *Bronze Medal.*

1177. J. W. Hubbard, *Boston.* Case of Millinery. Whole case neat and in good taste.

1178. Mrs. Isaac H. Sears, *Chelsea.* Embroidered Night Dress. Showing great taste and judgment. *Bronze Medal.*

1180. Mrs. Sally Stockwell, *Brattleboro', Vt.* Patchwork Quilt. The work of a lady 81 years of age. On account of age *Diploma.*

1181. Mrs. Nancy Harris, *Boston.* Patchwork Quilt. Very showy.

1186. Mrs. H. Gooding, *Boston.* Patchwork Quilt. Made by a lady 73 years old.

1195. Mrs. William Lydston, *Boston.* Embroidered Skirt. Very regularly done.

1196. Mrs. James Skinner, *Newtonville, Mass.* Wax Basket and Flowers. Delicate work ; showing great taste. *Diploma.*

1198. Mrs. Sarah W. Mair, *Boston.* Specimens of Embroidery. Nicely done.

1204. Mrs. H. M. Foster, *Reading, Mass.* Wrought White Counterpane. Beautifully executed. *Diploma.*

1212. Mrs. H. G. Francis, *Roxbury, Mass.* Yarn and Rag Rug. Neatly done. *Diploma.*

1213. Miss E. Hunt, *Boston.* Cone Frame. Neatly made.

1218. Mrs. H. A. Draper, *West Dedham.* Silk Quilt. Very neatly made.

1222. Miss A. M. S. Rossiter, *East Boston.* Shell Work Quilt. Fair specimen.

1229. Mrs. Sarah G. Ellis, *Hanover, Mass.* Cone Work Basket. Neatly done.

1236. Mrs. E. F. Whittredge, *Malden, Mass.* Infant's Embroidered Dress. Exquisite work. For the sewing, a *Diploma.*

1238. Miss C. A. Stetson, *South Reading*. Rag Rug. Beautifully done.

1241. Mrs. E. S. Dinsmore, *Charlestown*. Patchwork Quilt. Very handsome, and well made.

1246. W. Clapp & Co., *Boston*. Case of Hoop Skirts. Look well. Must be worn to pass judgment upon.

1550. Mrs. Lydia Stevens, *Boston*. Collar made with a Sewing Needle. Beautiful specimen of work. *Diploma.*

1254. Miss I. Plummer, *Boston*. Embroidered Chemise. Very neat.

1262. Mrs. L. A. Wyman, *Boston*. Case of Children's Clothing. *Diploma.*

1166. Mrs. S. Watkeys, *East Boston*. Cone Frame and Moss Basket. Very ingenious. *Diploma.*

1269. J. Coverly & Co., *Boston*. Case of Millinery. Bonnets neatly and tastefully made. Sustains their former reputation. *Diploma.*

1277. Miss M. E. Spear, *Neponset, Mass*. Block-work Ottoman Cover, neatly executed.

1279. Miss J. S. Warden, *Somerville*. Linen Cake-covers. Very neatly done. *Diploma.*

1280. Mrs. Wm. R. Warden, *Somerville*. Patch-work Quilt. Neatly done.

1281. Mrs. Timothy Remmick, *North Bridgewater*. Specimens of Straw Braid. Very well done.

1284. Benjamin Harman, *Boston*. Box of Beading Needles. Very useful, and something new. *Diploma.*

1287. Mrs. A. T. Seaverns, *Jamaica Plain*. Bead Sofa Pillow. Useful and ornamental.

1288. Miss A. Seaver, *Jamaica Plain*. Worsted Sofa Pillow. Very well done.

1290. Mrs. Gideon Currier, *Boston*. Two Patch-work Quilts. Beautifully designed and executed.

1292. Mrs. James W. Roberts, *Charlestown*. Basket of Wax Fruit. Very pretty.

1293. Mrs. E. P. Messinger, *Dorchester*. Patch-work Quilt. Original in design and tastefully executed.

1298. Mrs. E. A. Murdock, *Boston*. Case of Knit Worsted Articles. For originality of design and neatness of execution *Silver Medal.*

1302. Mrs. J. Waterhouse, *Boston.* Case of specimens of Machine Sewing. Neatly done. *Diploma.*

1304. Mrs. Catharine M. Scott, *Southbridge, Mass.* Embroidered Skirt. Very showy pattern, beautifully done. *Diploma.*

1306. Madam Demorest, *Boston.* Paper Patterns and Chart. *Diploma.*

1308. Miss C. M. Stearns, *Boston.* Moss House, showing great ingenuity and industry.

1311. Mrs. Sally Hovey, *Cambridgeport.* Stockings and Slippers. Neatly done.

1311. Mrs. Sally Markham, *Cambridgeport.* Worsted Pin-Cushion. Neatly done for an old lady of 76 years. *Diploma.*

1313. Mrs. Thomas E. Payson, *Boston.* Frame of Preserved Flowers. Tastefully arranged.

1315. Miss Carrie A. Smith, *Winchendon, Mass.* Embroidered Skirt. Very showy.

1316. Mrs. H. K. Batchelder, *Roxbury.* Wax Basket, Sofa Pillow, Elbow and Toilet Cushion, and two Mats. *Diploma.*

1318. Mrs. Elbredge Brown, *Malden.* Frame of Worsted Work. Good copy of an ancient picture.

1319. Mrs. M. J. Lennon, *Charlestown.* Six pieces of Embroidered Furniture, one Frame Tapestry. The screen very finely executed. The picture worthy of particular attention for richness of shading and beauty of execution. *Silver Medal.*

1332. J. L. Crosby, *Boston.* Case of Bonnets. Good taste and execution.

1323. Mrs. J. M. Turpin, *Boston.* Worsted-work Table. Beautifully done. *Diploma.*

1334. Mrs. A. M. Greene, (an invalid,) *Insane Hospital.* Patchwork Quilt, 3,580 pieces. A wonderful instance of patience.

1349. Mrs. F. F. Barrell, *Charlestown.* Frames of Worsted-work. The picture of Washington very well done.

1350. Mrs. M. B. Ware, *Boston.* Three Frames Worsted-work. For one of them a *Diploma.*

1354. Miss Clara A. Bissell, *Boston.* Specimens of Embroidery. Very neatly done.

1360. Mrs. E. H. Baker, *Boston.* Infant's Skirt. Very neatly done.

1361. Miss L. M. A. Knox, (four years old,) *Boston.* Specimen of Worsted-work. Very well done.

1367. Miss Margaret F. Taylor, *Boston.* Star-work Quilt. For originality of design and neatness of execution, a *Diploma.*

1368. L. S. Putnam, *Boston.* Spool Stand. A neat piece of work.

1373. Mrs. N. M. Richardson, *Boston.* Vase of Wax Flowers. Nicely done.

1375. Mrs. Hubbard E. Cox, *Reading.* Cone Frame Feather Wreath. In excellent taste. *Bronze Medal.*

1376. Miss Isabella Brown, *Boston.* Embroidered Skirt. Very beautifully done. *Diploma.*

1385. Mrs. A. W. Thompson, (73 years old,) *Chelsea.* Cone Frame of Hair Work. Remarkably well done for a lady of her age.

1387. Mrs. E. M. Hunnewell, *Jamaica Plain.* Patch-work Quilt, 1,384 pieces. Quite tasty.

1388. Mrs. Maria Tendler, *Cambridgeport.* Patch-work Quilt. A very elaborate piece of work.

1392. Mrs. J. H. White, *Boston.* Embroidered Skirt. Ingeniously and neatly done. *Diploma.*

1393. Mrs. E. C. Cushing, *Chelsea.* Embroidered Cape. Beautifully done. *Diploma.*

1402. Mrs. E. P. Munroe, *Charlestown.* Velvet Raised-work, showing ingenuity.

1467. Mrs. Julia Pelechio, *Boston.* Yarn Rug. Very well done.

1410. Miss S. J. Grover, *Boston.* Chenille Lamp Mat. Well done.

1417. Mrs. J. C. Murdock, *Boston.* Shell-work Cushion. Very elaborate.

1425. Mrs. Wm. Churchill, *Brookline.* Shell-work Quilt. Very handsome.

1426. Miss M. E. Clark, *Boston.* Frame Chenille-work. Well done.

1433. Miss S. E. Warner, *Chelsea.* Crotchet Tidy, 5,530 Stiches in Fringe. Very beautifully done.

1434. Mrs. A. Johnson, *Boston.* Flowered Quilt, Application Work, showing great patience and ingenuity.

1440. Mrs. John White, *Boston.* Quilt. Well done.

1441. Mrs. C. Story, *Gloucester.* Frame Pressed Flowers. Arranged with taste and beauty.

1443. Mrs. S. A. Gorham, *Boston.* Worsted-work Chair Covering. Very handsome variety, neatly done.

1445. Mrs. John K. Palmer, *Cambridge.* Pearl Painted Table. Very neat work.

1446. Mrs. E. C. Foster, *Manchester, N. H.* Silk Quilt and Table Cover. Beautifully done. *Bronze Medal.*

1448. Mrs. B. S. Shumway, *Boston.* Vase of Wax Flowers. Very beautifully done.

1449. F. P. Shumway, *Boston.* Three cases Knit Worsted Articles. *Diploma.*

1453. Miss M. Curtis, *Brighton.* Patch Quilt. The quilting and execution worthy a *Diploma.*

1454. Mrs. A. M. Smith, *Boston.* Worsted Chair Seat. Neatly done.

1455. Mrs. J. B. Morse, *Charlestown.* Counterpane, a close imitation of Marseilles. Very beautifully done. *Bronze Medal.*

1467. Mrs. G. W. Norris, *Somerville.* Frame Worsted Work. The chief merit is in the foliage.

1480. Mrs. F. R. Goth, *Boston.* Table Cover; evenly done.

1482. Mrs. M. E. C. Choate, *New Bedford, Mass.* Tatting Collar. Neat and with taste. *Diploma.*

1487. Mrs. L. Mulliken, *Boston.* Frame and Basket of Wax Fowers. Brilliant colors.

1494. Mrs. J. W. Coolidge, *West Needham.* Embroidered Skirt and Handkerchief. Elaborate piece of work.

1495. Miss Margaret Adams, *Roxbury.* Cone Frame and Basket. Very neatly made.

1499. Mrs. C. G. Cutter, *Boston.* Embroidered Skirt. Very showy.

1506. Mrs. E. A. Field, *Chelsea.* Crochet Tidy. Very well done.

1507. Miss J. D. Ottignon, *Boston.* Work Basket. Neatly done.

1513. Miss Hettie Hatch, *Charlestown.* A Table. Specimen of oriental painting, skillfully and artistically executed. *Bronze Medal.*

1517. Mrs. A. J. Moody, *Boston.* Embroidered Skirt. Neatly done.

1521. George F. M. Glover, *Medford.* Paper Cuttings and Trimmings. Well done. *Diploma.*

1524. R. H. STEARNS & Co., *Boston.* Hand-knit Worsted Goods — sustaining their former reputation for variety and good taste. *Bronze Medal.*

1532. MRS. W. J. NEFF, *Boston.* Case of Corsets, &c. *Diploma.*

1540. MRS. J. MANN, *Cambridge.* Cone Work. Model of Chapel at Mount Auburn. Very ingenious. *Diploma.*

1550. MRS. C. E. NORRIS, *Somerville.* Frame of Worsted Work. "George Washington." Very well done.

1554. MRS. HENRIETTA M. GIBSON, *Boston.* Silk Embroidered Chair Cover. Neatly done. *Diploma.*

1556. MISS A. ROBINSON, *Somerville.* Frame of Worsted Work. Very well done.

1573. MRS. J. GORDON, *Boston.* Embroidered Flannel Skirt. Well done.

1574. MISS S. HUNTING, *Brighton.* Specimen of Worsted Work. Her first attempt. Execution very good.

1584. E. KELLEMAN & Co., *Moosup, Conn.* Two Ottoman Covers, eight Lamp Mats, two pairs Slippers, and five Tassels. Patent Tufted Work. A very good imitation of hand work.

1588. MRS. PATIENCE LAMBERT, (80 years old,) *Dorchester.* Braided Mat. Very neatly done. *Diploma.*

1589. MRS. S. V. MERRITT, *Boston.* Shell Basket. Beautifully done. *Diploma.*

1599. MISS E. FRENCH, *Boston.* Frame Feather Wreath. Neatly and tastefully arranged.

1607. MISS BEDLINGTON, *by* HARRIS & CHAPMAN, *Boston.* Frame of Pressed Flowers. Neatly done.

1608. MADAM L. B. URBINO, *Jamaica Plain.* Vase of Wax Flowers. Perfect imitation of nature. *Silver Medal.*

1613. MRS. JAMES CHASE, *Lynn.* Rag Mat. Neatly done.

1618. HIRAM D. STETSON, *Boston.* Shell-work Quilt. Remarkably well executed.

1620. MRS. WM. COLSON, *Boston.* Patch-work Quilt. Much work, but little taste.

1626. MISS A. PERKINS, *Boston.* Specimens of Embroidery. Very neatly done. *Diploma.*

1627. MRS. M. C. BAURY, *Newton Lower Falls.* Shell-work Quilt. Very finely done.

1633. Mrs. H. A. Hovey, *Brookline.* Block-work Velvet Chair. Very neat work.

1634. Mrs. E. Colesworth, (65 years old,) *New Bedford.* Quilted Silk Skirt. Beautifully done. *Bronze Medal.*

1639. Mrs. E. H. Baker, *Boston.* Embroidered Cape. Very neat work.

1640. David Ventens, *New York, by* F. E. Flagg, *Framingham.* Needle Threaders. *Diploma.*

1644. Miss Lizzie Robbins, *South Boston.* Frame of Worsted-work. *Bronze Medal.*

1645. Miss A. O. Jones, *Boston.* Embroidered Skirt. A beautiful specimen of machine sewing.

1654. Miss Sophia H. Lamson, *Charlestown.* Embroidery. For neatness of work, *Diploma.*

1656. Miss Sophia L. Gould, *Lexington,* Frame of Pressed Flowers. Very beautifully done. *Bronze Medal.*

1658. Miss L. P. Harris, *Windsor, Vt.* Specimen of Embroidery. Excellent imitation of French work. *Bronze Medal.*

1659. St. Stephen's House, *by* Rev. E. M. P. Wells. Bed Spread. The work of a blind girl. *Diploma.*

1656. Mrs. H. M. Chase. Bead-work Toilet Cushion. Handsomely arranged.

1155. Mrs. W. W. Capen, *Boston.* Embroidered Screen. Beautifully done. *Bronze Medal.*

The following were omitted in their proper places : —

985. Thomas Dermot, *by* C. J. Bradbury, *Boston.* Patent Bell-Pull. An improvement, deserving a *Diploma.*

19. N. E. Hale, *Nashua, N. H.* Belt-Hook, Pliers, and Punch, Black's Patent. These have not been much introduced yet, but your Committee consider them preferable to any others, on account of their simplicity and strength. *Bronze Medal.*

577. S. A. Heath & Co., *New York.* Dedrick's Patent Fire Escape. *Bronze Medal.*

973. Campbell, Whittier, & Co., *Roxbury.* Steam Radiator. *Bronze Medal.*

ADDRESS

137a

BEFORE THE

MASSACHUSETTS

Charitable Mechanic Association,

AT THEIR

NINTH EXHIBITION

SEPTEMBER 26, 1860.

BY EMORY WASHBURN.

BOSTON:
PRINTED BY GEO. C. RAND AND AVERY.
NO. 3 CORNHILL.
1860.

BOSTON, SEPT. 27, 1860.

Dear Sir: At a meeting of the Board of Managers of the Ninth Exhibition of the Massachusetts Charitable Mechanic Association, held this day, the undersigned were appointed a committee to express to you the thanks of the Board for the excellent, practical, and instructive Address delivered before the members of the Association, and their guests, at Mechanics Hall, last evening, and to request a copy of the same for publication.

It affords us great pleasure to communicate this expression of thanks by the Board, and to add thereto our personal gratification for the service rendered to our Association, and the cause of mechanical industry.

Yours, etc.

FRED. H. STIMPSON,
W. W. WHIELDON,
OSMYN BREWSTER.

HON. EMORY WASHBURN, Cambridge.

CAMBRIDGE, OCT. 6.

Gentlemen: Your kind note requesting a copy of the Address I had the honor to deliver before the Mechanic Association has been received.

It gives me great pleasure to know that it was favorably received, for my respect for the body of gentlemen I was to address made me particularly anxious to comply with their wishes.

I shall cheerfully place the manuscript in your hands, to do with it as you think proper.

Very respectfully, your obt. svt.

EMORY WASHBURN.

F. H. STIMPSON, W. W. WHIELDON, OSMYN BREWSTER, ESQRS.

ADDRESS.

GENTLEMEN OF THE MECHANIC ASSOCIATION :—

If the occasion, on which we are assembled, were designed for instruction in some of the departments of science or art, to which you have devoted your special study and attention, I should feel that I was little better than an intruder upon your kindness, in attempting to comply with the invitation to address you at this time. It would be far more fitting that I should exchange plans with almost any one who hears me, than to tax your attention with thoughts which must be drawn from beyond the pale of a practical artisan life.

But if the field of a common humanity is open before us, there must be topics enough on which to dwell, on an occasion so full of interest, without limiting ourselves to the technical details of any trade or profession. Your association is based upon the affinities of common interests and pursuits, but your relations, as its members, with the world around you, are none the less intimate by reason of that connection. You have high aims to reach, noble purposes to fulfil, and solemn duties to perform, and will, I doubt not, bear patiently with one who, with honest purpose, asks you to lay aside, for a few moments, the specific objects for which you have associated yourselves, and to consider *some of the broader relations which you and the arts in which you are engaged, hold to the social and political condition of the world around you.*

In treating a theme like this, I can only hope to employ familiar illustrations, without aiming at learning or original thought. Every one, as he looks upon the world, sees that it is constantly changing. And, the more he reads of history, the more his curiosity is awakened to trace the causes which have been at work in producing the revolutions which he remarks in the social and political condition of men and nations.

It is common, for instance, to speak of England as a nation of shop-keepers. And yet if we go back but a few generations, we find her a nation of half-barbarous warriors and husbandmen and slaves, without trade and without commerce. Liverpool had scarce a place upon the map, and the fox was burrowing in what is now the market-place of Manchester, while Friar Tuck and Robin Hood were the representatives of the idle and lawless men who lived and preyed upon the little industry and less thrift that half redeemed the island from barbarism.

These changes, moreover, have been so great and so rapid, that we can only measure them by epochs and eras. The period of a single life is too full of incident to be repeated without our becoming weary in the detail. Within a few days, an ovation has been offered to the last survivor of that gallant band who, at Bunker Hill, fought the first great battle of our Revolution, who had, four years ago, passed his climacteric of a hundred years.

The mind is almost bewildered by the recollections that crowd upon it, of the great events and revolutions which have marked the period of this single life. But it is only necessary to go back less than four such lives, to find this western continent itself a blank, with the human mind, in the old world, waiting in torpid inactivity, for the development of some of those great inventions and discoveries which mark the fifteenth century, to rouse it to action.

The condition of the people in our own father land, was in harmony with the ignorance and debasement into which the nations of the continent had so long been sunk. The laborer in agriculture was the slave of a feudal master, and, as if to cut off every chance of escape from a servitude so galling, statutes were enacted whereby a man who had not rents or lands of twenty shillings income (some fifteen or twenty pouunds of our day), was not permitted to put his son as an apprentice to any trade, but required him to be brought up to husbandry. Everything in the kingdom was in keeping with such a condition of labor. Only here and there, was found any one sufficiently intelligent to read or write; while, in the matter of social refinement or personal comfort, the people were, if possible, in a worse condition. The peasant houses of England were mere mud cottages; nor were those of the better classes scarcely less squalid. Chimneys, even, did not come into use till a century after the period of which I am speaking. As late as the middle of the sixteenth century there were only two coaches in all France; and when, at the close of the fifteenth, Margaret, the daughter of Henry VII. of England, married James of Scotland, she made her entry into Edinburgh upon a pillion, riding behind the king.

These may be thought to be trifling incidents, but they serve to show the state of advance of a country whose lands had scarcely begun to be cultivated, and whose highways, all but impassable at best, were infested by banditti and highwaymen.

But what renders even this picture of social life more revolting, is the arbitrary links which separated the ranks and conditions of the people. The toiling masses had so long been accustomed to the supercilious pride of the nobles and favored classes, that abject dependence had come to be the normal state of labor. And yet the haughty baron, ignorant and besotted, kept state in his comfortless castle, in gross and disgusting revels, with less of comfort in his domestic appointments around him, than are met with in the dwellings of the humblest mechanics in our land.

It was not, let me repeat, so much that the houses of England of the fifteenth century were squalid, and her people destitute of the comforts of our day, that makes that period in her history so gloomy in the retrospect, as it was that her masses were born, grew up, lived and died in a condition of servitude and moral degradation. It was not that, as late as Elizabeth, the Queen, alone, in all the realm, was possessed of a pair of silken hose, but it was that the sandalled heel of a haughty aristocracy was upon the necks of the serfs who tilled the broad acres of a master, and struggled in vain to stand up in the dignity of manhood.

Let it not be supposed that I have forgotten the theme with which I started, in thus recalling the reminiscences of a people's history from whom we love to trace our descent. My purpose has been to present before you the comparative condition of a people with and one without the use of the mechanic arts, and to show you the tradesman of the England of our ancestors, cringing and trembling in the presence of some haughty noble, in contrast with the Brunels and Arkwrights and Stephensons of our day, earning the spurs of their knighthood,—the courted companions and counsellors of Peers and Cabinets.

At the very time, moreover, of which I have been speaking, and for a long time previous, while this gloom of the middle ages was yet resting upon England, there were cities, just across the Channel, where wealth and luxury and refinement had a home, and the germs of free thought had been springing up, till the condition of the citizen had become an object of the jealousy and envy of royalty itself.

Bruges and Ghent were crowded with mechanics and tradesmen and merchants, and the style to which their citizens had attained, a century before the period to which I have confined my remarks, is best illustrated by the fretful confession of wounded vanity, on the part of the Queen of France, while on a visit to these cities. "I had thought," said she, "to have been the only Queen here, but I find there are many hundreds more."

Nor is it difficult to detect a philosophical reason for this difference between these two people, though separated only by a narrow strait. It may be traced to the difference in their pursuits, and to the presence of the mechanic arts in the one, and their absence from the other.

History tells us that it was in the cities and boroughs and communities of men that the human mind first begun to act, at the revival of letters in Europe. And if we inquire who it was that congregated together in these early bodies politic, we shall find it was not the soldiers, nor the tillers of the soil, but the mechanics and tradesmen, whose ties of sympathy and community of interests bound them together to resist oppression. Nor is it doing injustice to any other class, to assert that there is something in the very exercise of inventive powers and mechanic skill which quickens the intellect, and keeps its faculties vigorous and active. Such pursuits rarely degenerate into a dull and monotonous routine, where, as in some departments of labor, the mind grows torpid. And when to all this we add that active sense of self-protection which men with a common purpose could hardly fail to cherish in a free and familiar intercourse with each other, it is not difficult to see why the manufacturers of the Netherlands should have gained a long start in the career of social independence, of the serfs and field-laborers of the countries where Feudalism still prevailed.

But perhaps a more powerful agency even than this, in breaking down the institutions of feudalism, was the production and multiplication by mechanism, commerce, and art of those objects of comfort and luxury, which, in time, became the necessaries for which the baron and the landholder were willing to barter away their pride and their possessions, and come down to mingle in the affairs of trade and active business.

Accordingly, even in England, and as early as the days of the Saxons, her mechanics had begun to associate for mutual protection, under what were called *Gilds*, some of which have been maintained to the present day.

With the acquisition of wealth, which an industrious pursuit of any of these trades was calculated to promote, birth came in time to be less and less regarded, and labor lost much of the stigma which had once been attached to most employments but that of arms, till, at last, wealth and physical power, no matter how they had been earned, became associated in the public mind with dignity and influence, and commerce and the arts took their places among the occupations which were counted worthy to engage the English hand and the English brain, and England became, indeed, in no invidious sense, a nation of shop-keepers.

Fortunately, this struggle in the mother country had been so far accomplished when our fathers came to New England, that they had little occasion to renew it here. Coming, as they did, from the middling classes of society, to whom labor had no terror, and compelled, as they were, from the necessity of their condition, to share in the toil and hardships of a new settlement, they had no false pride to overcome, nor prejudices to surmount, in order to be reconciled to such a lot.

Mechanical labor, moreover, from the first, took a commanding position in the scale of honorable pursuits proportioned to its importance, and the tradesmen who settled in the various towns shared liberally in the perils, as well as the burdens and the honors of the young communities.

There never has been any occasion for the mechanics of

New England to associate and combine together to guard their rights from popular invasion, or to secure a fair share of popular power. That men, having a common pursuit, should regard each other with peculiar interest, and be ready to associate for a common object, is a principle of human nature itself. Accordingly, we find in the early progress of the Revolution, before public sentiment had become omnipotent, by becoming united, the blacksmiths, for instance, of a county coming together, and solemnly pledging themselves not to trade with or work for the obnoxious Tories or mandamus counsellors of that day, and, in that way, as a mechanic association, making themselves sensibly felt in the opening contest in which the country was about to engage.

But it remained for the association which I am now honored in addressing, to be the first to unite in a permanent organization in our country, for the noble purposes of humanity and brotherhood, "promoting," in the language of its constitution, "mutual good offices and fellowship, by assisting the necessitous, encouraging the ingenious, and rewarding the faithful." It leaves, as it ought, each member to work out for himself his own social rank and condition, while it combines its energy and its influence in the unselfish offices of charity and good fellowship.

It would, indeed, have been doing injustice to the memory of their own past history, to have resorted to such an organization for the purpose of affecting their social position. With the story of the Revolution still fresh, and the names of Franklin and Paul Revere, of Green and Bigelow and of Roger Sherman, familiar to every one, it would have been a work of puerile supererogation for them to have combined to secure, for mechanical labor, the respect of the New England mind.

It is not within the scope of my subject to speak of the charity that has relieved the widow, fed and clothed the orphan, and lent a helping hand to a brother struggling with adversity. It is to the part which this association has taken and must hereafter take, in the wider field of honorable industry, on which the prosperity of New England must rest, that the line of my remarks leads me.

If I were to select from the high purposes avowed in the preamble of its constitution, I would say a single word of that which relates to the encouragement of mechanical ingenuity.

It has, sometimes, seemed as if men were eager to forget the right of the inventor to be protected in the fruits of his ingenuity and skill. If a man robs another of the corn that springs up in his field, or the fruit that drops from his tree, he does so, not only at the peril of the law, but of the reprobation of honest men. But if, after months and years of patient study and thought, the inventor perfects a useful machine, his reward has too often been either a determined hostility on the part of the operatives whose labor it was designed to facilitate, or a disposition on the part of those who are to be benefited by it, to pirate the invention or evade it, without a feeling of reproach at such an act of injustice, or of sympathy for the ruined hopes of the man who has thus been robbed.

England as well as our own country is full of illustrations of this discreditable indifference to the claims of genius and skill.

England is richer, by untold millions, by the spinning-mule of Crompton, who was suffered to die in poverty, surrounded by the wealth and luxury which his invention had earned for others. Whitney saw his claims rejected and his rights denied, by states and individuals to whom his invention had brought uncounted wealth and vast political power. Fitch and Evans and Fulton had to look to posterity for the recompense of a lifelong struggle of genius with adverse circumstances. And who has not himself seen the patient, careworn mechanic, struggling to give being to the conceptions of his brain, oppressed by poverty and disheartened by indifference and neglect?

That instances like these call for the generous sympathy of liberal minds, I have no need of urging before such an association. That the American brain is teeming with inventions in the useful arts, the records of the Patent Office give ample evidence. That it has been usefully and most successfully employed, needs no other proof than a walk through your exhibition-rooms to-day. The fruits of genius and skill, of that mighty power which has been elevating and improving the condition of man, meet one here on every side, from that little angel of the household which robs domestic life of half its discomforts, and brings rest to tired fingers and aching eyes, while it goes on stitching

"Seam and gusset and band,
Band and gusset and seam,"

and turns the sad "song of the shirt" of other days into pleasant romance, to that Leviathan whose giant power the tiny hand of a child may guide, though in tireless energy it does the labor of a thousand hands, and mocks at the tempest as it goes forth in triumph on its mission of commerce and civilization.

There is, however, a broader field than this open before you.

Of the many difficult problems which present themselves to the minds of reflecting men, there is, perhaps, no one more difficult to solve, as a matter of political economy or social duty, than the true relation between Capital and Labor. If it is ever to be solved, it must obviously be done by men of practical sagacity, rather than by theorizers and speculative abstractionists.

I do not say that it is your duty to do this, or that it can be done by any one. But sure I am, that if ever the problem is solved, it must be by men situated just as you are, who have practically filled both capacities of capitalist and laborer, of master and man, and know the difficulties and embarrassments which stand in the way of each.

The complaint has been repeated a thousand times, that capital carries off the lion's share of what labor has produced. And in the old world, this has too often been true. Capital, there, has been so far concentrated within a comparatively few hands, that it has had altogether the advantage of labor, which, by being overstocked, is always competing with itself, and compelled, thereby, to accept the lowest rate of compensation at which life could be sustained.

The evil, moreover, has been one which has gone on perpetuating itself by forcing the operation to forego the opportunity for study or intellectual culture, in the constant struggle by which alone he has been able to supply his animal wants. And thus unable to rise above the condition of dependence, he has left his children to renew an unequal contest with the very wealth that feeds them. The pictures which have so often been presented to us, of the condition of the working classes in the mining and manufacturing districts of England, have shown us what are the fruits of such an unequal division of profits between the few who furnish the capital and the many whom it employs. With the one, wealth has been going on doubling and quadrupling, while with the other, its gains have rarely been sufficient even in the periods of prosperity, to carry the working classes through the seasons of adversity which are sure, at times, to follow those of success. The consequence has been that beggary and want have crowded the almshouse as often as employment has failed, or a period of scarcity has forced up the prices of the necessaries of life.

There is little use, however, even there, in sitting down to deplore this state of things; and, fortunately, there is rarely, if ever, any occasion, in our country, to indulge in lamentation over the sufferings of unfed or unemployed operatives who are willing to work.

Much less is there any practical utility in reading homilies to employers, for not paying high wages, when labor is plenty at low rates in market. While to seek redress under the instigation of desperation or revenge, by compelling employers to pay uniform or arbitrary prices by means of organized strikes, is seen, in a vast majority of cases, to recoil upon the heads of those for whose pretended benefits they were originated.

Capital, in such a case, has the decided advantage of labor in the contest. That may cease to draw its profits while unemployed, but labor, in such a contigency, not only ceases to earn profits, but is compelled to consume what it may have already reserved, and to become every day less able to maintain the struggle. And even if, as is sometimes the case, the strike finds some employer unable to stand up against it, and he is crushed, while his neighboring capitalists maintain their integrity, the effect is to diminish the demand for labor, and lessen the chance of coercing them to yield to terms. And if we may suppose the most favorable circumstances for such a strike and the employers, as a class, are driven to pay wages beyond what the market will return to them in the form of prices for their goods, they must, in the end, stop work altogether, or, what is more likely, taking advantage of the fluctuations which attend every business, they will, in the end, remunerate their losses by exactions made at times, when the operative, in turn, is obliged to yield. And thus, an unnatural war is carried on between the employer and employed, whose interests ought to harmonize and be identical.

This, as I have said, is far from being a new question, either in economy or morals. It has engaged the earnest study of profound thinkers, the vagaries of idle dreamers, and the speculations of impracticable theorizers, some of whom have under-taken to lay down rules and canons for settling the rights of capital and labor, which read much better on paper than they work in practice.

Among these theorists, have been the famous St. Simon of France, and his still more famous countryman, Fourier, whose vagaries have found earnest advocates, even on this side of the water.

The theory upon which they rested their system of reform, was, that the evils of society grow out of its original bad organization, and this reform was to consist in carrying out the idea that "to each man there should be a vocation according to his capacity, and to each capacity a recompense according to its work."

What a hubbub and confusion would there be witnessed in this world of ours, if such a theory were to be once adopted! What a bubbling and seething in this great social caldron in which we are all afloat, if every man was consigned to just the vocation to which his capacity fits him! How many a pulpit would be vacated, and bar thinned of its members? How many a politician, now on the crest of the wave of popularity, would find himself and his patriotism floundering together in the mire, while names, unknown to fame, would be enrolled among the prudent counsellors and honest statesmen, whose memories brighten in the light of history?

Another part of this theory was, after appropriating enough of the products of a common industry to supply each citizen with his ordinary wants, to distribute the surplus so as to give to Labor *five*, to Capital *four*, and to leave *three* parts, only, for Talent.

But a theory of socialism, visionary, even for Paris, with its 250,000 work-people dependent on their daily wages for their daily bread, could, obviously, never be carried out in such a country as ours. And the problem is still unsolved.

One thing must be true. If, in a country like ours, labor, in any department, fails to find remunerative employment, for any considerable length of time, in an ordinary state of consumption and production, it must be because some mistake has been made in the proportions into which it should be divided. Everybody cannot get a living by making shoes, or watches, or hats, any more than everybody could get rich by turning lawyers, or doctors, or railroad engineers.

There is a certain amount of shoes and machinery and cotton cloth, required to supply the market, varying, of course, at different times, and, whenever this is supplied, if any new producer presses into these departments of labor, he helps to create an over-supply, and either he or some other workman must stop work, or they must together take up with what one had been receiving before.

We are told that it was such a state of things as this which led to the strike in the Leather business, which made so much noise, in our vicinity the last year. I have no occasion to sit in judgment upon the right or the wrong involved in the controversy. But it does not require a philosopher to understand that it must be a measure of doubtful expediency, to say the least, to throw away the earnings of one's hard toil and the chance of even a poor compensation, in time to come, upon public demonstrations of dissatisfaction and discontent. Nor is it any less clear that if a poor workman insists upon being paid as high price and as much money as one who is skilful, it must operate to throw into the hands of the better workmen the monopoly of employment.

This is the more important as a hint to the operatives of our country, from the facility with which every man of tact and ingenuity adapts himself to almost any condition of trade and handicraft. The system of apprenticeship, once common in New

England, has pretty much disappeared before the progress of Young America, and the ready knack with which her young men turn their hands to any sort of business, in the shortest possible time, is sure to furnish a supply wherever a demand arises. Lawyers come out, full-fledged, on two years' study, which, twenty-five years ago, it required from five to seven to produce. And whether the call be for a man to lay out a railroad, to make shoes, to settle Kansas, or to occupy Pike's Peak, there are never wanting enough, who ask only time in which to pack up a spare shirt or a dicky, to start for the land's end, if need be, ready to engage in the job.

It is hardly necessary to say that whether this facility is favorable or not to the improvement of our mechanics in the science and skill of their various trades, in a country where, thank Heaven, Capital does not own Labor, it cannot fail to counteract, in some measure, the success of anything like combinations to force up wages, by its creating a supply that will bring down prices, by the very competition which high wages are sure to create.

I would not have dwelt upon the subject of capital, and labor, and wages, if it did not seem to address itself to the very spirit of your Association, which seeks to do justice, while it promotes an enlightened charity and a generous benevolence.

I would, in this connection, have added a single word upon the inadequacy and disproportion of compensation paid to female labor in our country, as well as of the fields of employment which ought to be opened to that sex, from which they are now practically shut out. But I am compelled to hasten to the consideration of another and a broader field of duty than any to which I have referred. I mean that of giving to Labor its true position, and investing it with the dignity which intrinsically belongs to it, as well as of elevating and enfranchising it, so far as example can do it by a reflected influence upon the nations of the old world.

It is to combat errors of opinion, and not to flatter the pride of any one, that I approach this subject.

Ever since labor was imposed upon the race, a large proportion of them have regarded it as a burden which each felt at liberty to throw upon some other than himself. This led to the institution of servitude all over the East. And the same was true of the nations of Europe, wherever feudalism prevailed, giving to labor a social position from which it did not rise, even when villenage had been, nominally, abolished. It had, in fact, been so long associated with the idea of dependence and abasement, that a repugnance to it became, as it were, an instinctive feeling with all who could escape it.

The contrast between this state of feeling and a more rational sense of independence which associated itself with free and intelligent labor, is seen by a comparison between the fens and morasses and half-tilled fields, the comfortless dwellings, the ill-fed people, and general poverty of vassal England, with the garden-like culture, the crowded cities, the comfortable homes, and boundless resources of the free England of the loom and the spindle and the work-shop, of our day.

Yet with all this contrast, labor, even there, is but half emancipated. With all the terms of arrogant and self-righteous reprobation in which her philanthropists and politicians denounce an institution which, bad as it is, their ancestors entailed upon subject colonies, the laborer is kept down beneath the crushing weight of existing institutions. Labor has not only had to struggle with capital, but with a far more potent law of social organization which throws so many impediments in the way of the laborer, whenever he attempts to rise above the condition to which he is born, and to which he is trained till hope and ambition are crushed out of his nature.

The social evils of slavery do not grow out of the labor which is imposed upon it, but from the ignorance, the abject dependence and degradation as a class, in which involuntary labor must be kept, to maintain it at all. Nor does it matter much whether this ignorance and dependence are imposed by law, or by a social condition where the cause that produces it is a moral one. If the State neglects to furnish the means of education for its children, and leaves its laboring classes with no resources but their own labor which competition keeps down to almost a starvation price, how can she hope to see these classes rise above the condition to which they are born, of moral slavery, though politically free.

It is, indeed, a great point gained that the barrier is a moral rather than a physical or political one; and it is cheering, too, to be told, as we are from time to time, that the state of things is improving there. Here and there, this barrier has not unfrequently been broken through, and the cotton spinner and the mechanic have been able to mount up into the charmed circle of England's gentle and noble blood. A traveller in England, in 1847, thus speaks of some of these instances of success: "Sir Robert Peel is said to be one of the richest commoners in England, and this estate he inherited from his father, who amassed it by cotton-spinning. In Manchester, I passed three immense factories standing in a line, side by side, and containing, I doubt not, as many spindles as all the cotton factories in Lowell, and which, I was informed, belonged to three Scotchmen, or their immediate descendants, who came to Manchester, some fifty years ago, with a single crown in their pockets."

But when we turn from this bright side of the picture, to the poverty, wretchedness, and debasement which are portrayed in the pages of Dickens, or Elliot, or Kingsley, into which so many of the toiling masses of England are sunk, in her mines, her manufactories, and her workshops, we see the legitimate fruits of this unequal contest between capital and labor where the Government does so little to aid the weaker party, and the distance constantly widening between the few who own, and the many who till the soil, and tend the engines and spindles and looms of England. The great and crying injustice in all this is that after all the burdens which labor bears, in a hundred different forms, Government has heretofore cheated it out of the means of educating and fitting those who pursue it, for a better condition, and has hedged in the favored classes by arbitrary and artificial lines which few are able to surmount.

We can better judge, perhaps, how far our own country has advanced in the right direction, if we turn a moment to the condition of labor upon the continent.

France made a great and important step when she swept off the remnants of Feudalism within her borders in the storm of the revolution in 93. But in a country where the best blood and muscles of her sons are set apart for the camp, and woman is left to till the fields and do the drudgery of the farm, it is bitter mockery to speak of the dignity of labor or to treat of it as free.

Italy, with her host of nobles too proud to work, but, not a few of them, not ashamed to beg, has been, as to the useful and practical arts, stagnant and stationary, while the fruits of honest labor have been eaten up by stout, healthy men, who, because labor was beneath their dignity, have been content to play monks, or priests, or pimps, in order to live in idleness and ease.

Thank Heaven, a brighter day seems to be drawing on that lovely land, whose every stream, and mountain, and valley, is rich in the memories of classic and heroic times! A name is heard there, whose fame is bright even in the glory of her ancient days, at the very sound of which the tyrant quails and flees away. And the cheerful morning sounds of waking life are heard in the very streets and palaces of torpid, church-enveloped Rome.

But I am in danger of losing sight of the purposes of these remarks, by delaying their application to our own more favored land.

Is it not true that something remains yet to be done even here in New England, to give to labor its true position and just relation? In a community where public sentiment is so potent, is there not something for the master mechanic, the manufacturer, and the employer, as well as the laborer himself to do, to give to this moral power a healthier and a more thoughtful tone?

No man speaks openly, it is true, in disparagement of those who toil in the workshop or the field; and it is a part of the small charge of politicians, at certain seasons of the year, to deal liberally in glowing eulogies upon labor. But if this is in reality the leading, prevailing sentiment in the community, why are so many eager and studious to find some mode of gaining a livelihood which does not bring with it the hard hands and bronzed visage of hard work? Why are the professions crowded with indifferent preachers, fourth-rate lawyers, and M. D's., authorized to do no good *secundum artem?* Or why is the country overrun with itinerant lecturers, and "professors" of all imaginable *ologies,* while stout bewhiskered representatives of the sex out of which mechanics are made, usurp the province which should be left to their more manly sisters, playing milliners, measuring tape, assorting worsted yarns, and arranging and showing up for admiration, "Heaven save the mark!" the wonderful network of a lady's crinoline?

It is not merely because such men love their ease, or shrink from physical endurance, that they degrade themselves into the foolish fancy that they are, thereby, getting above the level of labor. Many of those, who would as soon touch a torpedo as a spade, or be shocked into hysterics by the dust and din of a smith's shop, would trudge all day, with a gun in hand, and a dog for a leader, to circumvent a brace of harmless woodcocks, or tramp through mire and bushes, bitten by black flies, and stung by musquitoes, to capture half a score of infantile trout, whose youth and inexperience should have been their protection.

The truth is, call a thing *labor*, and many a man will vote it irksome, and shun it as unbecoming his dignity; whereas, call the same thing pleasure, and he will go through it as if it were so, though it calls for a degree of endurance that a man would not think of imposing upon a hired day-laborer.

It is hardly necessary to add that notions like these must somehow, be rectified, before men will be willing to call things by their right names, or act as if labor was not one of those necessary evils which a man endures, simply because he cannot escape it. And let me say, in passing, that no body of men ever had a more favorable field or more effective means for carrying on any great work of social reform such as is here contemplated. than your own Association. The institutions necessary to aid in its accomplishment are already provided at your hand. Even the traditional pride of pedigree can operate but as a feeble barrier, in a community where scarcely a man who is known at all, would not show some implement of labor quartered with the arms blazoned on his escutcheon. Schools are the common property of all. College honors have ceased to be monopolized by what are called the learned professions, while the evidences of thrift and comfort and personal independence scattered all around us, are identified with the success which is crowning industry and systematic labor in every form.

With mechanics in our town and city councils, in our legislatures and in Congress, — with one of your own number worthily presiding over the interests and well-being of this noble city, whose charities are as broad as humanity, and whose enterprise, that feeds them, is as untiring as the wind that wafts her commerce, or the steam that moves her wheels, — here, surely, if anywhere, may be successfully wrought out the great social problem of placing the honest pursuit of busy industry on the common level of a people's respect.

But I pass to another field, in respect to which I wish to speak of the influence of mechanics and the mechanic arts. But let me guard against any misunderstanding in what I propose to say. I trench upon no man's ground as a politician; I address no man's prejudices; I appeal to no man's sympathies, nor do I acknowledge the *shibboleth* of any man's party.

We see existing among us the institution of involuntary labor, and who will say that its influence upon the great question of elevating and enfranchising labor, may not be properly discussed on an occasion like the present?

Unintelligent and uneducated labor is but a machine of one-man power. Compared in its efficiency with the force which it exerts when guided by intellect, it is like what we may remark any day, around our railroad stations, in the making up of trains for merchandise and freight. Some half a dozen men slowly and toilsomely push forward an empty car which, when loaded, with a score or two more and led on by the power of a single engine, goes sweeping across the country upon its iron track, as if the exercise of its power was a pastime.

And yet, the work of growing and fitting for the market one of the great staples of our country, is in many of its details carried on by this one-man-power machine, costly in its outlay, expensive in its support, and unsatisfactory in its product.

But it is not its want of economy alone. Its worst phase is in its effect upon labor itself, degrading it and unfitting it, in the eyes of the multitude, for the pursuit of free men, and, thereby, withdrawing from the productive industry of the country, no inconsiderable proportion of its useful and effective power.

Nor can anything short of a demonstration which people can see and apply for themselves, hope to convince these men of the practicability and respectability of substituting free labor that is paid, for involuntary service without pay. One may preach till he is hoarse, to unwilling ears, without making a single convert, while attacking the morality of an institution which has become traditional by toleration, and which, from the constantly expanding demand for its products, conceals its violation of the laws of economy, by the unnatural profits which circumstances enable it to earn. And they have, certainly, the reasonableness of the thought, as well as the analogies of the past, on their side, who regard it as one of the missions of mechanic labor and the mechanic arts to work out this very demonstration.

Suppose some happy invention, like that of McCormic's reaper for the grain States, could be reached for the benefit of those that grow cotton. Suppose some new Whitney or Arkwright should devise some labor-saving process for planting and gathering or fitting their staple for market, does not every one see that it would work a revolution in the character of labor in all that region? A leading politician of the South expressed the true view of this matter two or three years ago, in the shop of a mechanic in New York, who was a manufacturer of machinery. He had made certain valuable improvements in the cotton gin, and was endeavoring to construct a machine that should gather as well as gin the planter's crop.

While thus engaged, the gentleman entered and soon became interested in the incomplete machine. "And so," said he to the méchanic, "you too have turned abolitionist!" "Oh no," replied the latter, "I leave other folks to settle their affairs, while I try to take care of my own." "But," said the man of cotton, "don't you see if you carry out your plan, you will kill off half our slaves at once? Do you suppose a man is going to buy negroes when one of your Yankee machines will do more than a whole drove of them?"

I have an impression that one such invention would do more towards settling the question of the finality of the Union than all the politicians in the land. And as the blacksmith of whom we are told, who had been slandered and was advised to sue the offender, was satisfied he could go into his shop and work out a character a great deal quicker than by chasing after one through the courts, so it is not extravagant to say that one good mechanic and his establishment, planted at a proper point, could do more, by the exercise of his skill at handicraft, to introduce sound and sober reason upon the points that divide the public mind, than half a dozen preachers who should content themselves with addressing the moral sense of the owners of some three or four thousand millions of dollars' worth of what they call property, upon the enormity of continuing to hold it.

If manufacturing and the mechanic arts could once be introduced among the people there, the same consequences must follow, to a certain extent, at least, as have always followed the congregation of such operatives in villages and considerable communities. Churches would be gathered, schools would spring up, and the incidents and surroundings of such collections of free men, would, as a matter of course, develop themselves. And, let the character of field labor be what it might, for a while, in villages like these, no one would have occasion to hang his head while busy at his task.

Nor let any man pronounce this idle or visionary, or suppose because the thing looks dark and portentous now, that Providence has no way of drawing off the elements of that fatal explosion with which the clouds seem now to be charged.

Does one suppose that, with the raw material at their doors, with water-power in abundance, and mineral resources of uncounted value, unemployed, the Plantation States are always to be content to have their coats and their shoes, their clothes and their farming tools, their cars and their engines, and the thousand articles of prime necessity manufactured abroad, and are always to depend for these upon the labor and ingenuity of other regions ?

Establishments for these purposes have already been commenced in different localities, and are in a further state of forwardness than the art of cotton manufacture itself was in England seventy-five years ago. Intellectual labor in some of its departments has always been liberally rewarded and honored in that portion of our country, and what is there to prevent labor in any department which calls into exercise a corresponding skill, ingenuity, and intellectual power, from taking its place by the side of free thought and liberal learning ? How long would it take a series of communities like those of Waltham, or Worcester, or the Bridgewaters, made up of the people of that region, and scattered at different points through the South and Southwest, to live down the odium of labor, and build up a sound, practical, active sentiment, with the thrift and prosperity which such towns would be sure to foster with their growth ?

It was by such a process that the vassalage and serfdom of Europe was broken down, and white slavery, as a recognized institution, disappeared in Italy and England. The people grew free, not by outside violence, but by internal forces, and home-directed influences.

I do not suppose you are going to put on your armor like the red-cross knights of old, and go forth upon a crusade for free labor. But there is not one of you who may not do something towards infusing into the public mind a sound and healthy sentiment upon this very subject of its becoming elevated and free, which only needs to become general, to be the harbinger of a brighter day for civil liberty, than any that has dawned since the old Thirteen declared themselves their own masters.

I would not indulge in too sanguine hopes or extravagant fancies, as we look forward to the future of our country, in connection with the part which you and men like you are acting, in bringing about the changes that are to be wrought in the condition of the race. But the mission which free mechanical labor has already performed, is but the earnest of what it is yet to accomplish. I look back upon the gloom and darkness of the middle ages, and I read in its history how light broke in through the cloud that had settled down over the nations. I see Schoeffer and Guttenberg setting in motion an engine, away back in the 15th century, which is, at this day, busy in giving impulse to every movement of the human mind. I see a monk in his cell, combining that wonderful composition of elements so powerless in themselves, which gives to war the laws of science, and disarms it of half its horrors, which puts into the hand of man a power that conquers the inertness of matter, and opens up the highways of commerce and civilization. I look again, and I see the kindly instinct of art urging on while it is keeping pace with human progress, and supplying its ever-increasing wants. I see the Marquis of Worcester calling upon the subtle element of steam to work the mines of England; and Bolton and Watt developing from the same agency a working power, the limit of whose energy a century has not been able to measure. I see Arkwright starting his spinning-frame, just at the moment when without some such agent, England must have sunk beneath the weight of hostile continental alliances. And when the commerce and intercourse of the world could no longer be adequately served without some new application of the forces of nature, Fulton comes forward to supply it upon the water, and Stephenson, erelong, is doing the same thing upon its iron track, by land.

And when, at last, a new sentient power was wanted for the world itself, having all the magic quickness of individual thought and perception, the Electric Telegraph, in the hands of Morse, starts into life at his bidding, to give, as it were, a single vital energy and activity to the millions that make up the busy, restless, and, hitherto, alien nations of the earth.

I might pursue this illustration into the field of domestic comfort and convenience, and economic utility, — to the machine that gins our cotton, mows our grass, threshes our grain, sews our shirts, and pegs our boots, but time forbids.

As we contemplate the past, who is to say where are to be the limits of human invention, or beyond what bounds Art and Genius may not pass? Or who can doubt that mechanism and mechanic skill are to go forward, hand in hand, with whatever agency shall be employed to elevate, emancipate, and Christianize the human race?

This thought opens to the mind a still broader and nobler and holier field for the mission of the mechanic arts. We are on the eve of a half century jubilee of the Christian world since measures were inaugurated in our country, in an organized form, for carrying to the heathen world a knowledge of our Holy Religion. Of the signal success of that enterprise, as it has been variously prosecuted by the several religious denominations which have taken part in it, it is unnecessary for me to speak in this presence. Language would be inadequate to do justice to the power of a written and preached gospel, in moulding, and elevating, and purifying the character of nations as well as of men. But when the light of Christianity and civilization shall have spread over the regions once given up to moral desolation, it will be found that, in the economy of divine Providence, other agencies than the abstract force of truth will have been at work in converting the debased Pagan into the civilized Christian. It will be because the arts, the comforts, and the sources of physical enjoyment, no less than the elements of cultivated thought, which go to make up an American home, had become necessary to them, by having been taught and exhibited among them. It will have been the plough that brought fertility to their fields, the spindle and the loom that clothed them in decent apparel, the comfortable dwelling that gave them shelter, and the enjoyment of what it cost them care and diligence and skill to cultivate, or manufacture, or obtain in the exchanges of commerce, that created within them the tastes of refined Christian life and the amenities of enlightened Christian intercourse. In short, it will then be found that the arts, the possession of which distinguishes the condition of savage from civilized life, will have gone forward as the pioneers of that faith and worship of the true God which carries social refinement and civil liberty in its train.

But my time forbids my pursuing this thought any farther. And it only remains for me to again remind you that these are some of the relations in which, as members of this association, you and the pursuits in which you are engaged, stand to the world, its history and its hopes. See to it, that in your hands art loses none of its sanctity, and labor none of its dignity or its honorable rewards.

The exhibition which we have been witnessing of the varied skill of the artisan, in the halls which this occasion has crowded with works of utility and beauty, is but an earnest of the onward progress which our country is making in the march of cultivation and improvement. But it is, if possible, of a deeper interest as an exhibition of artisans themselves, of the men whose brains conceived and whose hands executed these products of taste and genius and curious skill, and, above all, of the men who, in their own lives, and the success which they have achieved, have helped to dignify labor, and give to it that honorable position which it holds here to-night.